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EVALUATION OF ALTERNATIVE PROCEDURES FOR ATMOSPHERIC ABSORPTION—ETC(U)

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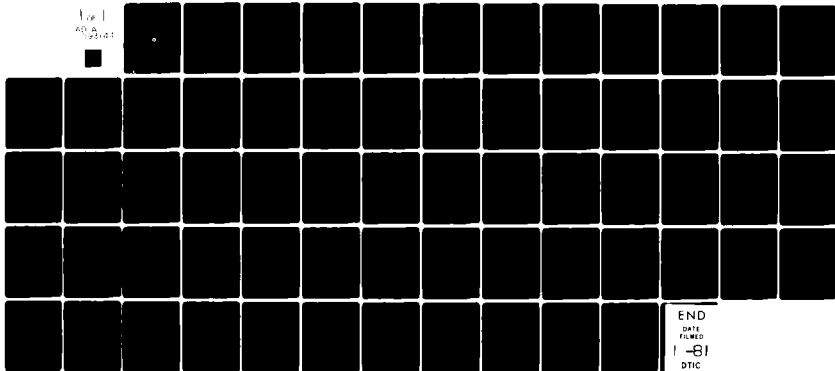
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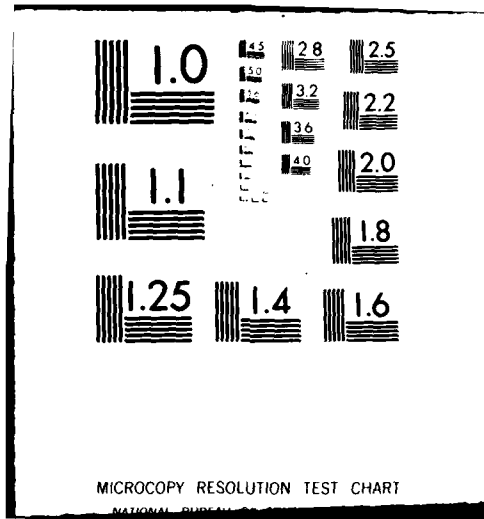
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EVALUATION OF ALTERNATIVE PROCEDURES FOR ATMOSPHERIC ABSORPTION ADJUSTMENTS DURING NOISE CERTIFICATION

Volume III: Tables of Atmospheric-Absorption Losses

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FINAL REPORT**

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15. Abstract The work reported here extends that in FAA-RD-77-167, December 1977, to the problem of adjusting actual aircraft noise 1/3-octave-band spectra measured at 0.5-s intervals. Test-day spectra are used to calculate PNL, PNL _T , EPNL, AL, and SEL. The test-day spectrum at the time of PNL _T and at the time of ALM are adjusted to acoustical-reference conditions using the atmospheric-absorption method in American National Standard ANSI S1.26-1978 and applied, using measurements of air temperature and relative humidity at various heights above the ground, by integrating over the frequency range of the passband of ideal filters and by calculating the absorption at the exact band center frequencies only. SAE ARP866A is also used with the vertical-profile temperature/humidity data and with data at 10.0 m to determine adjustments from test to reference conditions. The adjustment methods are applied to noise data from 9 aircraft. Volume I describes the analyses and results of the study. Volume II presents the computer program that was developed and illustrates its use with a test case. Volume III presents tables of attenuation due to atmospheric absorption over a 300-m path. Attenuations were calculated using ANSI S1.26-1978 for pure tones at band center frequencies and for 3 noise spectral slopes by a band-integration method, and using SAE ARP866A. For each of the 5 methods, the tables cover 34 air temperatures from 2 to 35C, 10 relative humidities from 10 to 100 percent, and 24 nominal band center frequencies from 50 to 10,000 Hz.		
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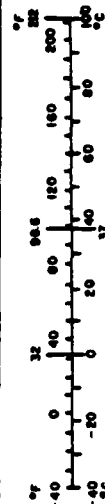
METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
sq in	square inches	6.5	square centimeters	cm ²
sq ft	square feet	0.09	square meters	m ²
sq yd	square yards	0.8	square meters	m ²
sq mi	square miles	2.6	square kilometers	km ²
ac	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
sh	short tons (2000 lb)	0.9	tonnes	t
VOLUME				
cup	cup	5	milliliters	ml
fl oz	fluid ounces	15	milliliters	ml
qt	quarts	0.24	liters	l
pt	pints	0.47	liters	l
gal	gallons	0.26	liters	l
cu ft	cubic feet	2.8	cubic meters	m ³
cu yd	cubic yards	0.83	cubic meters	m ³
		0.76	cubic meters	m ³
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
km	kilometers	1.1	yards	yd
		0.6	miles	mi
AREA				
sq cm	square centimeters	0.16	square inches	sq in
sq m	square meters	1.2	square yards	sq yd
sq km	square kilometers	0.4	square miles	sq mi
ha	hectares (10,000 m ²)	2.5	acres	ac
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	sh
VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
		1.06	quarts	qt
		0.26	gallons	gal
m ³	cubic meters	35	cubic feet	cu ft
		1.3	cubic yards	cu yd
TEMPERATURE (exact)				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



* 1 in = 2.54 in exactly. For other exact conversions and more detailed tables, see NPS Misc. Publ. 205, Units of Weights and Measures, Price \$2.25, SD Catalog No. C13.10-205.

EVALUATION OF ALTERNATIVE PROCEDURES FOR
ATMOSPHERIC ABSORPTION ADJUSTMENTS
DURING NOISE CERTIFICATION

VOLUME III: TABLES OF ATMOSPHERIC-ABSORPTION LOSSES

1. INTRODUCTION

While analytical methods are available to calculate the attenuation of the amplitude of a freely propagating sound wave because of absorptive processes in the atmosphere, for ready comparison of the magnitude of the differences in the results of applying the various methods it is more convenient to use tables that present data for a wide range of the relevant physical variables. The purpose of this volume is to present such tables for a range of air temperatures, relative humidities, frequencies, calculation methods, and pure-tone or broadband sounds.

The quantity that is listed in the tables is the attenuation, in decibels, of the amplitude of a sound wave after propagation over a distance of 300 m. The attenuation values in the tables consider atmospheric-absorption losses only; attenuation caused by spreading the acoustic power over increasingly larger surface areas as the wave propagates away from the source is not included and would be additive to the tabulated attenuation values. A distance of 300 m was chosen so that most of the tabulated low-frequency attenuation values would be significant with a precision of 0.1 dB. The 300-m distance also closely corresponds with the 1000-ft (304.8-m) distance used with some published tabulations of pure-tone atmospheric-absorption coefficient (i.e., absorption loss per unit distance) in decibels per 1000 feet.

Two methods of calculating atmospheric absorption for pure-tone sounds are included: that of American National Standard ANSI S1.26-1978 and that of the Society of Automotive Engineers Aerospace Recommended Practice ARP866A. Broadband sounds with band-level spectral slopes of +1, -6, and -12 dB/band are included for determination of attenuation by the band-integration method. The broadband sounds are considered to be analyzed

by ideal 1/3-octave-band filters. The method of SAE ARP866A was used exactly as though it was being applied to a broadband sound analyzed by 1/3-octave-band filters. The frequencies of the pure-tone sounds for which the attenuation was calculated by the method of ANSI S1.26-1978 were those of the exact center or geometric mean frequencies of the ideal 1/3-octave-band filters. These choices are consistent with the analyses in Volume I.

The remainder of this Volume consists of five sections. Section 2 presents a discussion of the analytical basis for the tables. Section 3 offers some general remarks relative to possible uses for the tables. Section 4 describes the scope and content of the tables. Section 5 contains the tables themselves. Section 6 is a listing of the FORTRAN statements for the computer program that generated the tables.

2. ANALYTICAL BASIS FOR THE TABLES

Attenuation values tabulated in Section 5 were calculated by five methods [designated as methods (A), (B), (C), (D), and (E)] for each combination of air temperature and relative humidity. For methods (A) to (D), atmospheric absorption was calculated using the analytical model in American National Standard ANSI S1.26-1978. For method (E), the atmospheric absorption and the attenuation over the 300-m path were calculated by the method of SAE ARP866A. The analytical descriptions in this Section partially duplicate those in Volume I and are provided here for the reader's convenience.

2.1 Method (A)

Method (A) determines the attenuation due to atmospheric absorption over the 300-m path for pure-tone sounds at the exact center frequencies of the standard 1/3-octave-band filters. For a pure-tone sound, the sound pressure level, L_2 , at a point 2 is related to the sound pressure level, L_1 , at point 1 by

$$\begin{aligned} L_2 &= L_1 - (L_1 - L_2) \\ \text{where } (L_1 - L_2) &= 10 \log p_1^2 / p_2^2 \\ &= -10 \log p_2^2 / p_1^2 \end{aligned} \quad (1)$$

with point 2 being farther from the source than point 1 and on a line in the direction of propagation.

Neglecting losses caused by the geometric spreading of sound power over larger surface areas, the squared pressures are related by

$$p_2^2 = p_1^2 e^{-2\alpha\xi} \quad (2)$$

where α is the sound atmospheric absorption coefficient in nepers/m and ξ is the propagation distance in meters.

With eq. (2), the band level difference for a pure-tone sound is

$$\begin{aligned} (L_1 - L_2) &= 20 \alpha \xi \log_{10} e \\ &= \alpha \xi \end{aligned} \quad (3)$$

where $a = (20 \log e)(\alpha) = 8.6859\alpha$ is the atmospheric sound absorption coefficient in dB/m.

For specified air temperature, relative humidity, air pressure, and frequency, the value of a is calculated and multiplied by the propagation distance $\xi = 300$ m to determine the magnitude of the attenuation in decibels.

2.2 Methods (B), (C), and (D)

For methods (B), (C), and (D), the sound was assumed to be a broadband noise with a continuous and constant-slope spectrum. With $G(f)$ representing the sound pressure spectral density function, the time-averaged mean squared pressures in a filter band at locations 1 and 2 are determined from

$$\overline{p_1^2} = \int_0^\infty G_1(f) df \quad (4)$$

and

$$\overline{p_2^2} = \int_0^\infty G_2(f) df. \quad (5)$$

At any frequency, the pressure spectral density functions are related by

$$G_2 = G_1 e^{-2a\xi}$$

or, in an equivalent form, by

$$\begin{aligned} G_2 &= (G_1)(10^{-a\xi/10}) \\ &= G_1 A \end{aligned} \quad (6)$$

where A is the atmospheric absorption function for specified air temperature, relative humidity, and air pressure.

By analogy with eq. (1), the band level difference is, with eq. (6) for G_2 ,

$$\begin{aligned} (L_1 - L_2) &= -10 \log \overline{p_2^2} / \overline{p_1^2} \\ &= -10 \log \left\{ \left[\int_0^\infty G_1 A df \right] / \left[\int_0^\infty G_1 df \right] \right\}. \end{aligned} \quad (7)$$

Assuming that the filters have ideal transmission-response characteristics, the infinite limits for the integrals in eq. (7) can be replaced by integration over the passband of the filter from the lower, f_L , to the upper, f_U , bandedge frequencies.

For a sound pressure spectral density with a constant spectral slope, the noise spectrum at point 1 (the G_1 function) can be written as

$$G_1(f) = K(f/f_c)^{SL} \quad (8)$$

where K is an arbitrary constant that can be taken outside the integrals, f_c is the band center frequency, and SL is the slope. The constant K actually represents the pressure spectral density at the band center frequency f_c ; its value is arbitrary since it appears identically in numerator and denominator.

Using eq. (8) and the assumption of ideal filters, the band-level difference (or attenuation) becomes

$$(L_1 - L_2) = -10 \log \left\{ \left[\int_{f_L}^{f_U} (f/f_c)^{SL} A df \right] / \left[\int_{f_L}^{f_U} (f/f_c)^{SL} df \right] \right\}. \quad (9)$$

The denominator term in eq. (9) can be evaluated directly to give

$$\int_{f_L}^{f_U} (f/f_c)^{SL} df = f_c \ln (f_U/f_L) \quad (10)$$

when $SL = -1$, and

$$\int_{f_L}^{f_U} (f/f_c)^{SL} df = f_c [1/(SL + 1)] [(f_U/f_c)^{SL + 1} - (f_L/f_c)^{SL + 1}] \quad (11)$$

when $SL \neq -1$.

Introducing the band frequency ratio

$$RF = f_U/f_L \quad (12)$$

and noting that

$$f_U/f_c = RF^{1/2} \text{ and } f_L/f_c = RF^{-1/2} \quad (13)$$

and restricting the slope SL to be not equal to -1 , eq. (11) for the denominator term becomes

$$\text{DEN} = \int_{f_L}^{f_U} (f/f_c)^{\text{SL}} df = f_c [1/\text{BS}] [\text{RF}^{\text{BS}/2} - \text{RF}^{-\text{BS}/2}] \quad (14)$$

where the notation BS has been used for the band slope (i.e., the slope of the 1/3-octave-band spectrum at point 1). The abbreviation DEN is used in the statements for the computer program.

The band slope is related to the slope of the sound pressure spectral density by

$$\text{SL} = \text{BS} - 1$$

$$\text{or} \quad \text{SL} + 1 = \text{BS}.$$

The band slope BS is determined from the band-level differences using

$$\text{BS} = \Delta L / (10 \log \text{RF}) \quad (15)$$

where ΔL is the band-level difference in dB/band.

For 1/3-octave-band filters, the frequency ratio is

$$\text{RF} = 10^{1/10}. \quad (16)$$

The band center frequency is found from

$$f_c = 10^{\text{ISBN}/10} \quad (17)$$

where ISBN is the set of International Standard Band Numbers for 1/3-octave-band filters that ranges from 17 to 40 for nominal band center frequencies ranging from 50 to 10,000 Hz.

With f_c , RF, ΔL (and hence BS) known or specified, the denominator term can be calculated readily using eq. (14).

The numerator term in eq. (9) is evaluated by a numerical integration method with the limiting frequencies f_L and f_U defined by eqs. (12), (13), and (17) and with the attenuation function defined by eq. (6) for a propagation distance of $\xi = 300.0$ m.

The attenuation, for each filter band, is then calculated by carrying out the operation defined by eq. (9) for specified band-level slopes ΔL of +1, -6, and -12 dB/band. Note that $\Delta L = +1$ implies a white-noise spectrum ($SL = 0$) with constant pressure spectral density. A band-level slope of $\Delta L = 0$ would mean a pink-noise spectrum with $SL = -1$.

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3. REMARKS ON USES FOR THE TABLES

The tables in Section 5 permit comparative analyses of attenuation values determined using the pure-tone atmospheric-absorption calculation method of ANSI S1.26-1978 at the exact 1/3-octave-band center frequencies. For broadband sounds with constant spectral slopes, attenuation values are calculated by a numerical integration scheme over the passband of corresponding ideal 1/3-octave-band filters with atmospheric absorption specified by S1.26-1978. Attenuation values calculated using the atmospheric-absorption model of SAE ARP866A are also provided. Tabulated values are given for a wide range of air temperature and relative humidity so that the magnitude of the differences among the calculation methods and various trends can be illustrated.

Attenuation values were selected for the tables, and not atmospheric absorption coefficients, because the concept of an absorption coefficient is not directly applicable to a broadband sound analyzed by fractional-octave-band filters. Attenuation (the difference in band sound pressure levels at two points) depends on the length of the propagation path, the slope of the sound pressure spectral density at the first point on the path, as well as the atmospheric conditions along the path and the frequencies within the filter passband. Equations (6) and (7) in Section 2 show the essential linkage of these variables in a calculation of band-level attenuation.

Attenuation values for method (E) were calculated by a straightforward application of the procedures of SAE ARP866A, including the shift from the use of nominal band center frequencies to nominal lower bandedge frequencies for the last four bands. This choice was made to keep the comparisons consistent with current usage of ARP866A even though the resulting comparisons include a built-in distortion for band center frequencies of 5000, 6300, 8000, and 10,000 Hz.

The tables were prepared with the assumption that the air pressure was 1.0 standard atmospheres. Separate calculations have shown that air pressure is a minor variable over the range of air pressures usually encountered in aircraft noise measurements.

Good agreement between the attenuation calculated at the band-center frequency and that calculated over a filter passband by a band-integration method depends on the slope of the sound pressure spectral density not being too steep and on the fact that 1/3-octave-band filters are relatively narrow for low to mid frequencies. At high frequencies (or over long pathlengths) there can be relatively large differences between the attenuation at the band-center frequency and that calculated by a band-integration method.

For high-frequency noise spectral slopes that are relatively steep (because of highly absorptive conditions, or long propagation paths, or both), inspection of the tables shows that the band-level adjustment factor from actual to acoustical reference conditions of 25°C and 70 percent relative humidity is generally smaller by the band-integration method than by either pure-tone method (A or E), at least for band center frequencies less than 5000 Hz. This observation is consistent with the results reported in Volume I.

4. DESCRIPTION OF THE TABLES

For each combination of air temperature and relative humidity, the 300-m attenuation values in the tables are calculated by five methods for each frequency or frequency band. The methods are labeled (A), (B), (C), (D), and (E) over the columns in the tables. The various methods are described below:

(A) The attenuation experienced by a pure-tone sound having a frequency equal to the exact center frequency of the 24 1/3-octave bands and with atmospheric absorption coefficients calculated by the method of American National Standard ANS S1.26-1978.

(B) The attenuation, over the frequency range of the passband of ideal 1/3-octave-band filters, experienced by a broadband sound having a band-level slope of +1.0 dB/band, i.e., a white-noise signal. Atmospheric absorption calculated by ANS S1.26-1978 at specified frequencies over the range of each filter passband. Attenuation is calculated by a numerical integration process.

(C) Like (B), except for a band-level slope of -6 dB/band.

(D) Like (B) and (C), except for a band-level slope of -12 dB/band.

(E) The attenuation as calculated by the method of the Society of Automotive Engineers' Aerospace Recommended Practice, ARP866A, 15 March 1975, for broadband noise signals analyzed by 1/3-octave-band filters. Note that the method is really a calculation of the atmospheric-absorption loss of a pure-tone sound but, in contrast to method (A), the calculation is done for the nominal band center frequencies for bands 1 to 20 and for the nominal lower bandedge frequencies for bands 21 to 24 (i.e., nominal band center frequencies from 50 to 4000 Hz and nominal lower bandedge frequencies for band center frequencies from 5000 to 10,000 Hz).

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5. TABLES OF ATMOSPHERIC ABSORPTION LOSSES

The tables on the next 34 pages present values of the attenuation, in decibels, caused by atmospheric absorption losses for a sound wave propagated over a distance of 300 meters. Each page is for a specified air temperature ranging from 2 to 35 degrees celsius at intervals of one degree. Each page shows attenuation values for relative humidities ranging from 10 to 100 percent at intervals of 10 percentage points. For each combination of air temperature and relative humidity, attenuation values are presented for 24 frequencies, or frequency bands, corresponding to the 1/3-octave bands having nominal band center frequencies ranging from 50 to 10,000 hertz. The air pressure is assumed to be 1.0 standard atmosphere for all calculations.

Column headings (A), (B), (C), (D), and (E) for the methods of calculating attenuation are defined in Section 4.

ATTENUATION, IN DB, OVER 300-M PATHLENGTH FOR AN AIR TEMPERATURE OF 2 DEG C
AIR PRESSURE = 1.0 STD. ATMOSPHERE; RELATIVE HUMIDITY, IN PERCENT, NOTED ABOVE COLUMNS

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH					20 PCT RH					30 PCT RH					40 PCT RH					50 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
N 50	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.1	.1	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1
80	.1	.1	.1	.1	.3	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1
100	.2	.2	.2	.2	.4	.1	.1	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
125	.3	.3	.3	.2	.5	.2	.2	.2	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
150	.4	.4	.4	.4	.7	.2	.2	.2	.2	.4	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
200	.6	.6	.6	.5	1.0	.3	.3	.3	.3	.5	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
I 250	.9	.8	.8	.8	1.3	.4	.4	.4	.4	.7	.3	.3	.3	.3	.5	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4
N 315	1.3	1.3	1.2	1.2	1.7	.6	.6	.6	.6	1.0	.4	.4	.4	.4	.7	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4
L 400	1.8	1.9	1.8	1.7	2.2	.9	.9	.9	.8	1.5	.6	.6	.6	.5	1.0	.5	.5	.4	.4	.4	.4	.4	.4	.4	.6
500	2.6	2.6	2.5	2.4	2.7	1.3	1.3	1.3	1.2	2.0	.8	.9	.8	.8	1.4	.6	.6	.6	.6	1.0	.5	.6	.5	.5	.8
630	3.5	3.6	3.4	3.3	3.2	2.0	2.0	1.9	1.8	2.8	1.3	1.3	1.2	1.2	1.9	.9	.9	.9	.9	1.4	.8	.8	.7	.7	1.1
O 800	4.6	4.6	4.5	4.4	3.7	3.0	3.0	2.9	2.8	3.9	1.9	1.9	1.8	1.7	2.8	1.4	1.4	1.3	1.3	2.1	1.1	1.1	1.0	1.0	1.6
N 1000	5.7	5.7	5.6	5.5	4.2	4.4	4.4	4.2	4.1	5.4	2.9	2.9	2.7	2.6	3.8	2.0	2.1	2.0	1.9	2.9	1.6	1.6	1.5	1.5	2.3
E 1250	6.7	6.7	6.6	6.5	4.7	6.3	6.3	6.1	5.9	6.9	4.3	4.3	4.1	4.0	5.3	3.1	3.1	3.0	2.8	4.1	2.4	2.4	2.3	2.2	3.2
1600	7.6	7.6	7.5	7.4	5.2	8.8	8.8	8.4	8.2	8.8	6.4	6.5	6.1	5.9	7.5	4.7	4.7	4.5	4.3	5.9	3.6	3.7	3.5	3.4	4.7
T 2000	8.2	8.2	8.1	8.0	5.8	11.6	11.6	11.2	10.9	10.7	9.4	9.4	9.0	8.7	10.4	7.1	7.1	6.8	6.5	8.2	5.6	5.6	5.3	5.1	6.6
H 2500	8.8	8.8	8.7	8.7	6.4	14.6	14.6	14.2	13.9	12.9	13.3	13.3	12.7	12.4	13.8	10.6	10.6	10.1	9.7	11.2	8.4	8.4	8.0	7.7	9.3
I 3150	9.3	9.3	9.2	9.2	7.2	17.5	17.5	17.1	16.9	15.1	18.1	18.0	17.4	16.9	17.6	15.4	15.3	14.6	14.2	15.6	12.7	12.6	12.0	11.6	13.1
R 4000	9.8	9.7	9.7	9.7	8.2	20.1	20.1	19.8	19.6	17.3	23.6	23.4	22.7	22.2	22.1	21.7	21.5	20.6	20.1	22.0	18.7	18.4	17.6	17.0	18.3
D 5000	10.3	10.4	10.3	10.2	8.8	22.4	22.4	22.1	21.9	18.5	29.2	29.0	28.3	27.8	24.6	29.4	29.0	28.0	27.4	25.3	26.7	26.2	25.1	24.5	21.7
6300	11.1	11.1	11.0	10.9	10.1	24.4	24.4	24.2	24.0	20.7	34.5	34.3	33.7	33.3	29.6	38.0	37.4	36.4	35.7	31.9	36.7	35.9	34.7	33.9	30.1
B 8000	12.2	12.3	12.1	12.0	11.8	26.5	26.5	26.2	26.0	23.5	39.4	39.3	38.7	38.3	35.2	46.8	46.2	45.2	44.5	40.1	48.4	47.3	46.0	45.1	40.8
A 10000	14.0	14.0	13.8	13.6	14.2	28.8	28.8	28.5	28.3	27.0	44.1	44.0	43.4	43.0	40.9	55.3	54.8	53.8	53.2	49.9	60.9	59.7	58.3	57.4	52.4
	60 PCT RH					70 PCT RH					80 PCT RH					90 PCT RH					100 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
C 50	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
E 63	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
N 80	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1
T 100	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
E 125	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
R 160	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
F 250	.2	.3	.2	.2	.3	.2	.3	.2	.2	.3	.2	.3	.2	.2	.3	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3
R 315	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
E 400	.4	.4	.4	.4	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
Q 500	.5	.5	.5	.5	.7	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.6
U 630	.7	.7	.6	.6	.9	.6	.6	.6	.6	.8	.6	.6	.6	.6	.8	.6	.6	.6	.6	.7	.6	.6	.6	.6	.7
E 800	.9	.9	.9	.9	1.3	.8	.8	.8	.8	1.1	.8	.8	.8	.8	1.0	.7	.8	.7	.7	1.0	.7	.7	.7	.7	.9
N 1000	1.3	1.4	1.3	1.2	1.9	1.2	1.2	1.1	1.1	1.6	1.1	1.1	1.0	1.0	1.4	1.0	1.0	1.0	.9	1.3	1.0	1.0	.9	.9	1.2
C 1250	2.0	2.0	1.9	1.8	2.7	1.7	1.7	1.6	1.6	2.2	1.5	1.5	1.5	1.4	1.9	1.4	1.4	1.3	1.3	1.8	1.3	1.3	1.3	1.2	1.6
Y 1600	3.0	3.0	2.8	2.7	3.9	2.5	2.6	2.4	2.3	3.3	2.2	2.2	2.1	2.1	2.8	2.0	2.0	1.9	1.9	2.5	1.8	1.9	1.8	1.7	2.3
2000	4.5	4.6	4.3	4.2	5.5	3.8	3.9	3.7	3.5	4.7	3.3	3.4	3.2	3.1	4.1	3.0	3.0	2.8	2.7	3.6	2.7	2.7	2.6	2.5	3.2
2500	6.9	6.9	6.6	6.3	7.8	5.8	5.9	5.6	5.3	6.7	5.1	5.1	4.8	4.6	5.8	4.5	4.5	4.3	4.1	5.1	4.0	4.1	3.9	3.7	4.5
M 3150	10.5	10.5	10.0	9.6	11.1	8.9	8.9	8.5	8.1	9.5	7.7	7.8	7.3	7.1	8.3	6.8	6.9	6.5	6.2	7.4	6.1	6.2	5.8	5.6	6.6
Z 4000	15.8	15.7	14.9	14.4	15.9	13.6	13.5	12.8	12.4	13.7	11.8	11.8	11.2	10.8	12.1	10.5	10.4	9.9	9.5	10.7	9.4	9.4	8.9	8.6	9.6
5000	23.4	22.9	21.9	21.3	18.9	20.4	20.1	19.1	18.5	16.4	18.0	17.7	16.9	16.3	14.5	16.0	15.8	15.0	14.5	12.9	14.4	14.3	13.5	13.1	11.6
6300	33.6	32.7	31.5	30.7	25.7	30.2	29.3	28.1	27.3	22.8	27.0	26.3	25.1	24.4	20.3	24.3	23.7	22.6	21.9	18.1	22.0	21.5	20.5	19.8	16.4
8000	46.6	45.1	43.7	42.7	36.4	43.3	41.8	40.2	39.3	32.2	39.7	38.2	36.7	35.8	29.0	36.3	34.9	33.5	32.6	26.2	33.2	32.0	30.7	29.8	23.7
10000	61.8	59.9	58.3	57.3	51.3	59.8	57.5	55.8	54.7	45.5	56.6	54.0	52.3	51.2	41.1	52.9	50.4	48.6	47.5	37.6	49.2	46.8	45.1	44.0	34.3

ATTENUATION, IN DB, OVER 300-M PATHLENGTH FOR AN AIR TEMPERATURE OF 3 DEG C
AIR PRESSURE = 1.0 STD. ATMOSPHERE; RELATIVE HUMIDITY, IN PERCENT, NOTED ABOVE COLUMNS

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH					20 PCT RH					30 PCT RH					40 PCT RH					50 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.1	.1	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1
80	.1	.1	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
100	.2	.2	.2	.2	.3	.1	.1	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
125	.3	.3	.2	.2	.5	.2	.2	.2	.1	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
160	.4	.4	.4	.3	.7	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
200	.5	.6	.5	.5	.9	.3	.3	.3	.3	.5	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
250	.8	.8	.8	.7	1.3	.4	.4	.4	.4	.7	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4
315	1.2	1.2	1.2	1.1	1.7	.6	.6	.5	.5	1.0	.4	.4	.4	.4	.6	.5	.5	.5	.5	.5	.4	.4	.4	.4	.5
400	1.8	1.8	1.7	1.6	2.2	.8	.8	.8	.8	1.4	.6	.6	.6	.6	.9	.5	.5	.5	.5	.5	.7	.4	.4	.4	.5
500	2.5	2.6	2.4	2.4	2.8	1.3	1.3	1.2	1.2	1.9	1.2	1.2	1.1	1.1	1.8	.9	.9	.9	.8	.8	.9	.5	.5	.5	.7
630	3.5	3.5	3.4	3.3	3.4	1.9	1.9	1.8	1.7	2.7	1.2	1.2	1.1	1.1	2.6	1.3	1.3	1.2	1.2	1.3	.7	.7	.7	.7	1.0
800	4.7	4.7	4.5	4.4	4.0	2.8	2.9	2.7	2.6	3.8	1.8	1.8	1.7	1.6	2.6	1.3	1.3	1.2	1.2	1.9	1.0	1.1	1.0	1.0	1.5
1000	5.9	5.9	5.7	5.6	4.6	4.2	4.2	4.0	3.9	5.2	2.7	2.7	2.6	2.5	3.7	1.9	2.0	1.8	1.8	2.8	1.5	1.5	1.5	1.4	2.2
1250	7.1	7.1	6.9	6.8	5.2	6.1	6.1	5.9	5.7	7.0	4.1	4.1	3.9	3.7	5.1	2.9	2.9	2.8	2.7	3.9	2.3	2.3	2.2	2.1	3.0
1600	8.1	8.1	8.0	7.9	5.8	8.6	8.6	8.3	8.0	9.0	6.1	6.1	5.8	5.6	7.2	4.4	4.5	4.2	4.1	5.6	3.4	3.5	3.3	3.2	4.5
2000	9.0	9.0	8.9	8.8	6.4	11.6	11.6	11.2	10.9	11.1	9.0	9.0	8.6	8.3	9.9	6.7	6.7	6.4	6.2	7.8	5.2	5.3	5.0	4.8	6.3
2500	9.7	9.7	9.6	9.6	7.1	15.0	15.0	14.5	14.2	13.5	13.0	12.9	12.4	12.0	13.7	10.1	10.1	9.6	9.2	10.8	8.0	8.0	7.6	7.3	8.9
3150	10.3	10.3	10.2	10.2	7.9	18.4	18.3	17.9	17.6	16.2	18.0	17.9	17.2	16.7	18.0	14.9	14.7	14.1	13.6	15.0	12.0	12.0	11.4	11.0	12.5
4000	10.8	10.8	10.8	10.7	9.0	21.5	21.5	21.1	20.9	18.9	23.9	23.7	22.9	22.4	22.8	21.3	21.0	20.1	19.6	21.3	17.9	17.7	16.9	16.3	17.7
5000	11.4	11.5	11.4	11.3	9.6	24.3	24.3	24.0	23.7	20.2	26.3	26.0	25.3	24.7	25.5	23.3	23.0	22.0	21.5	23.3	20.0	19.8	18.9	18.3	20.9
6300	12.3	12.3	12.2	12.1	11.0	26.8	26.8	26.5	26.3	22.8	28.5	28.2	27.5	26.9	27.8	25.7	25.4	24.3	23.8	25.7	22.4	22.2	21.4	20.7	23.4
8000	13.4	13.4	13.3	13.1	12.8	29.1	29.1	28.8	28.6	25.8	32.4	32.1	31.5	30.9	31.1	28.7	28.4	27.2	26.7	28.6	25.3	25.1	24.2	23.5	26.7
10000	15.2	15.2	14.9	14.8	15.3	31.7	31.7	31.4	31.1	29.5	37.9	37.7	37.1	36.6	37.4	35.6	35.3	34.1	33.6	35.6	32.3	32.1	31.2	30.5	33.8
N O M I N A L D E T E R M I N E D F R E Q U E N C Y H E R T Z	60 PCT RH					70 PCT RH					80 PCT RH					90 PCT RH					100 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
	.7	.7	.6	.6	.9	.6	.6	.6	.6	.8	.6	.6	.6	.6	.7	.6	.6	.6	.6	.7	.6	.6	.6	.6	.7
	.9	.9	.9	.8	1.2	.8	.8	.8	.8	1.1	.8	.8	.8	.8	1.0	.8	.8	.8	.7	.9	.7	.7	.7	.7	.9
	1.3	1.3	1.2	1.2	1.8	1.1	1.2	1.1	1.1	1.5	1.0	1.1	1.0	1.0	1.3	1.0	1.0	1.0	.9	1.3	1.0	1.0	.9	.9	1.2
	1.9	1.9	1.8	1.7	2.5	1.6	1.7	1.6	1.5	2.1	1.5	1.5	1.4	1.4	1.9	1.4	1.4	1.3	1.3	1.7	1.3	1.3	1.2	1.2	1.6
	2.8	2.8	2.7	2.6	3.7	2.4	2.4	2.3	2.2	3.1	2.1	2.2	2.1	2.0	2.7	1.9	2.0	1.9	1.8	2.4	1.8	1.8	1.7	1.7	2.2
	4.3	4.3	4.1	3.9	5.2	3.6	3.5	3.3	3.2	4.5	3.2	3.2	3.0	2.9	3.8	2.8	2.9	2.7	2.6	3.4	2.6	2.6	2.5	2.4	3.1
	6.5	6.6	6.2	6.0	7.4	5.5	5.6	5.3	5.1	6.3	4.8	4.8	4.6	4.4	5.5	4.5	4.5	4.3	4.1	4.8	3.9	3.9	3.7	3.6	4.3
	10.0	9.9	9.4	9.1	10.5	8.4	8.4	8.0	7.7	9.1	7.3	7.3	7.0	6.7	7.9	6.5	6.5	6.2	5.9	7.0	5.8	5.9	5.6	5.3	6.2
	15.1	14.9	14.2	13.7	15.2	12.9	12.8	12.1	11.7	13.1	11.2	11.2	10.6	10.2	11.5	9.9	9.9	9.4	9.0	10.1	8.9	8.9	8.4	8.1	9.1
	22.5	22.0	21.0	20.4	18.1	19.5	19.2	18.3	17.7	15.7	17.1	16.9	16.0	15.5	13.8	15.2	15.0	14.3	13.8	12.2	13.7	13.6	12.9	12.4	11.0
	32.7	31.8	30.5	29.7	24.9	29.0	28.3	27.0	26.3	21.9	25.8	25.2	24.0	23.3	19.3	23.2	22.6	21.6	20.9	17.3	20.9	20.5	19.5	18.9	15.5
	46.1	44.5	43.0	42.1	35.0	42.2	40.7	39.1	38.2	31.2	38.3	36.9	35.4	34.5	27.8	34.8	33.6	32.2	31.3	24.9	31.8	30.7	29.3	28.5	22.6
	62.4	60.1	58.4	57.4	49.8	59.4	56.8	55.0	54.0	43.9	55.4	52.8	51.0	49.9	39.8	51.3	48.9	47.1	46.0	36.0	47.5	45.2	43.5	42.4	32.7

ATTENUATION, IN DB, OVER 300-M PATHLENGTH FOR AN AIR TEMPERATURE OF 4 DEG C
AIR PRESSURE = 1.0 STD. ATMOSPHERE; RELATIVE HUMIDITY, IN PERCENT, NOTED ABOVE COLUMNS

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	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
63	.1	.1	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1
80	.1	.1	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
100	.2	.2	.2	.2	.3	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
125	.2	.2	.2	.2	.5	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
160	.4	.4	.4	.4	.7	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
200	.5	.5	.5	.5	.9	.3	.3	.3	.3	.5	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
250	.8	.8	.7	.7	1.2	.4	.4	.4	.4	.6	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
315	1.1	1.2	1.1	1.1	1.7	.5	.5	.5	.5	.9	.4	.4	.4	.4	.6	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5
400	1.7	1.7	1.6	1.6	2.3	.8	.8	.8	.8	1.3	.5	.5	.5	.5	.9	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5
500	2.5	2.5	2.4	2.3	3.8	1.2	1.2	1.1	1.1	1.8	.8	.8	.8	.8	1.2	.6	.6	.6	.6	.6	.5	.5	.5	.5	.7
630	3.5	3.5	3.3	3.2	5.0	1.8	1.8	1.7	1.6	2.6	1.1	1.1	1.1	1.1	1.7	.8	.9	.8	.8	1.3	.7	.7	.7	.7	1.0
800	4.7	4.7	4.5	4.4	6.4	2.7	2.7	2.6	2.5	3.6	1.7	1.7	1.6	1.5	2.5	1.2	1.2	1.2	1.1	1.8	1.0	1.0	1.0	.9	1.4
1000	6.0	6.1	5.9	5.8	8.0	4.0	4.0	3.8	3.7	5.0	2.5	2.6	2.4	2.3	3.5	1.8	1.8	1.7	1.7	2.6	1.5	1.5	1.4	1.3	2.0
1250	7.4	7.4	7.3	7.1	9.5	5.9	5.9	5.6	5.4	6.9	3.8	3.9	3.7	3.5	4.9	2.7	2.8	2.6	2.5	3.7	2.2	2.2	2.1	2.0	2.9
1600	8.7	8.7	8.5	8.4	10.5	6.4	6.4	6.1	5.9	7.8	4.6	4.7	4.5	4.3	6.0	3.4	3.5	3.3	3.2	4.4	2.8	2.8	2.7	2.6	3.6
2000	9.8	9.8	9.6	9.5	12.0	7.1	7.1	6.8	6.6	8.6	5.1	5.2	5.0	4.8	6.6	3.8	3.9	3.7	3.5	4.9	3.2	3.2	3.1	3.0	4.2
2500	10.6	10.6	10.5	10.4	13.0	7.8	7.8	7.5	7.3	9.5	5.6	5.7	5.5	5.3	7.2	4.2	4.3	4.1	4.0	5.4	3.6	3.6	3.5	3.4	4.7
3150	11.3	11.3	11.2	11.1	14.0	8.7	8.7	8.4	8.2	10.5	6.4	6.5	6.3	6.1	8.1	4.6	4.7	4.5	4.4	5.9	3.9	3.9	3.8	3.7	5.0
4000	12.0	12.0	11.9	11.8	15.0	9.9	9.9	9.6	9.4	11.8	7.2	7.3	7.1	6.9	9.1	5.1	5.2	5.0	4.9	6.5	4.3	4.3	4.2	4.1	5.5
5000	12.7	12.7	12.6	12.5	16.0	10.5	10.5	10.2	10.0	12.5	7.8	7.9	7.7	7.5	9.6	5.6	5.7	5.5	5.4	7.1	4.7	4.7	4.6	4.5	6.0
6300	13.5	13.5	13.4	13.3	17.0	12.0	12.0	11.7	11.5	14.0	9.0	9.1	8.9	8.7	10.5	6.4	6.5	6.3	6.1	8.1	5.1	5.1	5.0	4.9	6.5
8000	14.7	14.7	14.6	14.4	18.0	13.9	13.9	13.6	13.4	16.0	10.5	10.6	10.4	10.2	12.1	6.9	7.0	6.8	6.6	8.6	5.6	5.6	5.5	5.4	7.0
10000	16.5	16.5	16.3	16.1	19.0	16.6	16.6	16.3	16.1	18.0	12.0	12.1	11.9	11.7	13.0	7.5	7.6	7.4	7.2	9.0	6.1	6.1	6.0	5.9	7.5
N																									
D																									
C	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
E	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
80	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
100	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
125	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
160	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
200	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
F	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
250	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
315	.3	.3	.3	.3	.4	.3	.3	.3	.3	.4	.3	.3	.3	.3	.4	.3	.3	.3	.3	.4	.3	.3	.3	.3	.4
400	.4	.4	.4	.4	.5	.4	.4	.4	.4	.5	.4	.4	.4	.4	.5	.4	.4	.4	.4	.5	.4	.4	.4	.4	.5
E	.5	.5	.5	.5	.6	.5	.5	.5	.5	.6	.5	.5	.5	.5	.6	.5	.5	.5	.5	.6	.5	.5	.5	.5	.6
630	.7	.7	.6	.6	.8	.6	.6	.6	.6	.8	.6	.6	.6	.6	.7	.6	.6	.6	.6	.7	.6	.6	.6	.6	.7
800	.9	.9	.9	.9	1.2	.8	.8	.8	.8	1.1	.8	.8	.8	.8	1.1	.8	.8	.8	.8	.9	.8	.8	.8	.8	.9
N	1.2	1.3	1.2	1.2	1.7	1.1	1.1	1.1	1.0	1.4	1.0	1.0	1.0	1.0	1.3	1.0	1.0	1.0	.9	1.2	1.0	1.0	.9	.9	1.2
E	1.8	1.8	1.7	1.7	2.4	1.6	1.6	1.5	1.5	2.0	1.4	1.5	1.4	1.3	1.8	1.3	1.3	1.3	1.3	1.6	1.3	1.3	1.2	1.2	1.6
C	2.7	2.7	2.6	2.5	3.5	2.2	2.2	2.2	2.1	2.9	2.1	2.1	2.0	1.9	2.6	1.9	1.9	1.8	1.8	2.3	1.8	1.8	1.7	1.6	2.1
Y	4.0	4.1	3.9	3.7	4.9	3.4	3.5	3.3	3.2	4.2	3.0	3.1	2.9	2.8	3.6	2.7	2.8	2.6	2.5	3.4	2.5	2.5	2.4	2.3	2.9
2500	6.2	6.2	5.9	5.6	7.0	5.2	5.3	5.0	4.8	6.0	4.6	4.6	4.4	4.2	5.2	4.1	4.1	3.9	3.7	4.5	3.7	3.7	3.5	3.4	4.1
H	9.4	9.4	8.9	8.6	10.0	8.0	8.0	7.6	7.3	8.6	6.9	7.0	6.6	6.3	7.5	6.2	6.2	5.9	5.6	6.6	5.6	5.6	5.3	5.1	5.9
Z	14.3	14.2	13.5	13.0	14.4	12.2	12.1	11.5	11.3	12.4	10.6	10.6	10.0	9.7	10.8	9.4	9.4	8.9	8.6	9.7	8.5	8.5	8.0	7.7	8.6
5000	21.5	21.1	20.1	19.5	17.3	18.6	18.3	17.4	16.8	14.9	16.2	16.1	15.2	14.7	13.1	14.4	14.3	13.6	13.1	11.6	13.0	12.9	12.2	11.8	10.4
6300	31.7	30.8	29.5	28.7	24.0	27.9	27.1	25.9	25.1	20.9	24.7	24.1	23.0	22.2	18.4	22.1	21.6	20.6	19.9	16.4	19.9	19.6	18.6	18.0	14.7
8000	45.3	43.6	42.1	41.1	33.8	41.0	39.4	37.9	36.9	29.9	36.9	35.6	34.1	33.2	26.6	33.4	32.2	30.8	29.9	23.8	30.4	29.4	28.1	27.2	21.6
10000	62.4	59.9	58.2	57.1	47.7	58.5	55.8	54.0	52.9	42.4	54.0	51.4	49.6	48.5	38.2	49.7	47.2	45.5	44.4	34.4	45.8	43.5	41.8	40.8	31.2

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

NOMINAL ONE THIRD BAND CENTER FREQUENCY, HZ

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

[illegible]

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

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ATTENUATION, IN DB, OVER 300-M PATHLENGTH FOR AN AIR TEMPERATURE OF 8 DEG C
AIR PRESSURE = 1.0 STD. ATMOSPHERE; RELATIVE HUMIDITY, IN PERCENT, NOTED ABOVE COLUMNS

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH					20 PCT RH					30 PCT RH					40 PCT RH					50 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
80	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
100	.2	.2	.2	.2	.3	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
125	.2	.2	.2	.2	.4	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
160	.3	.3	.3	.3	.5	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2
200	.4	.4	.4	.4	.8	.3	.3	.3	.3	.5	.3	.3	.3	.3	.5	.3	.3	.3	.3	.5	.3	.3	.3	.3	.3
250	.6	.6	.6	.6	1.1	.3	.4	.3	.3	.5	.3	.3	.3	.3	.5	.3	.3	.3	.3	.5	.3	.3	.3	.3	.3
315	.9	.9	.9	.9	1.5	.5	.5	.5	.5	.7	.4	.4	.4	.4	.7	.5	.5	.5	.5	.7	.5	.5	.5	.5	.5
400	1.4	1.4	1.3	1.3	2.1	.7	.7	.6	.6	1.1	.5	.5	.5	.5	1.0	.6	.6	.6	.6	1.0	.6	.6	.6	.6	.6
500	2.1	2.1	2.0	1.9	2.9	.9	1.0	.9	.9	1.5	.7	.7	.7	.7	1.0	.8	.8	.8	.8	1.1	.8	.7	.7	.7	.7
630	3.0	3.0	2.9	2.8	3.9	1.4	1.4	1.3	1.3	2.1	.9	1.0	.9	.9	1.4	1.1	1.1	1.0	1.0	1.5	.9	.9	.9	.9	.9
800	4.4	4.4	4.2	4.1	4.9	2.1	2.1	2.0	1.9	3.1	1.4	1.4	1.3	1.3	2.0	1.5	1.5	1.5	1.4	2.1	1.3	1.3	1.2	1.2	1.2
1000	6.1	6.1	5.9	5.7	6.1	3.2	3.2	3.0	2.9	4.3	2.0	2.0	1.9	1.9	2.9	1.5	1.5	1.5	1.4	2.1	1.3	1.3	1.2	1.2	1.2
1250	8.1	8.1	7.9	7.7	7.4	4.8	4.8	4.6	4.4	5.9	3.0	3.1	2.9	2.8	4.0	2.2	2.2	2.1	2.1	3.0	1.8	1.8	1.8	1.7	1.7
1600	10.4	10.4	10.1	9.9	8.9	7.2	7.2	6.8	6.6	8.4	4.6	4.6	4.4	4.2	5.9	3.3	3.4	3.2	3.1	4.3	2.7	2.7	2.6	2.5	2.5
2000	12.6	12.6	12.3	12.1	10.2	10.5	10.5	10.0	9.7	11.6	7.0	7.0	6.6	6.4	8.2	5.0	5.1	4.8	4.6	6.2	4.0	4.0	3.8	3.7	3.7
2500	14.5	14.5	14.3	14.1	11.4	14.9	14.8	14.2	13.8	15.5	10.5	10.5	9.9	9.6	11.4	7.7	7.7	7.3	7.0	8.7	6.0	6.1	5.7	5.5	5.5
3150	16.2	16.2	16.0	15.9	12.8	20.3	20.1	19.4	18.9	19.7	15.6	15.4	14.7	14.2	15.8	11.7	11.6	11.0	10.6	12.3	9.2	9.2	8.7	8.4	8.4
4000	17.6	17.6	17.4	17.3	14.3	26.5	26.2	25.5	24.9	24.8	22.5	22.2	21.2	20.6	22.3	17.6	17.3	16.5	16.0	17.7	14.0	13.9	13.2	12.7	12.7
5000	18.8	18.8	18.6	18.5	15.1	32.9	32.6	31.8	31.3	27.6	31.5	30.9	29.7	29.0	26.6	26.0	25.4	24.3	23.6	21.0	21.2	20.8	19.8	19.2	17.1
6300	20.1	20.1	19.9	19.8	17.0	39.0	38.6	38.0	37.5	33.2	42.2	41.3	40.1	39.3	35.4	37.4	36.3	34.9	34.0	28.7	31.6	30.7	29.4	28.5	23.9
8000	21.5	21.6	21.3	21.2	19.5	44.6	44.4	43.7	43.3	39.5	54.1	53.0	51.6	50.8	45.7	51.9	50.1	48.5	47.5	40.4	46.0	44.2	42.6	41.6	34.1
10000	23.5	23.5	23.2	23.0	22.7	49.8	49.6	49.0	48.6	45.9	66.1	65.0	63.7	62.9	57.7	69.1	66.6	64.9	63.8	57.2	64.8	61.8	59.9	58.8	47.9

	60 PCT RH					70 PCT RH					80 PCT RH					90 PCT RH					100 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
80	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
100	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
125	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
160	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
200	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
250	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
315	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
400	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
500	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6
630	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7
800	.9	.9	.9	.9	.8	.9	.9	.8	.8	.8	.8	.8	.8	.8	.8	.9	.9	.9	.8	.8	.9	.9	.8	.8	.8
1000	1.2	1.2	1.1	1.1	1.4	1.1	1.1	1.1	1.1	1.3	1.1	1.1	1.0	1.0	1.3	1.1	1.1	1.0	1.0	1.3	1.1	1.1	1.0	1.0	1.3
1250	1.6	1.6	1.5	1.5	2.0	1.5	1.5	1.4	1.4	1.8	1.4	1.4	1.3	1.3	1.7	1.3	1.3	1.3	1.3	1.6	1.3	1.3	1.3	1.3	1.6
1600	2.3	2.3	2.2	2.1	2.8	2.0	2.1	2.0	1.9	2.5	1.9	1.9	1.8	1.8	2.3	1.8	1.8	1.7	1.7	2.1	1.7	1.7	1.7	1.6	2.1
2000	3.3	3.4	3.2	3.1	4.0	2.9	2.9	2.8	2.7	3.4	2.6	2.7	2.5	2.5	3.1	2.5	2.5	2.4	2.3	2.9	2.3	2.3	2.2	2.2	2.7
2500	5.0	5.0	4.8	4.6	5.7	4.3	4.4	4.1	4.0	4.8	3.8	3.9	3.7	3.6	4.2	3.5	3.5	3.4	3.3	3.9	3.3	3.3	3.2	3.0	3.6
3150	7.6	7.6	7.2	6.9	8.2	6.5	6.5	6.2	6.0	6.9	5.7	5.8	5.5	5.3	6.0	5.2	5.2	5.0	4.8	5.4	4.8	4.8	4.6	4.4	5.0
4000	11.6	11.6	11.0	10.6	11.9	9.9	9.9	9.4	9.0	10.2	8.7	8.7	8.3	7.9	8.8	7.8	7.8	7.4	7.1	7.8	7.1	7.1	6.8	6.5	7.1
5000	17.7	17.5	16.6	16.0	14.4	15.2	15.0	14.3	13.8	12.2	13.3	13.2	12.5	12.1	10.7	11.9	11.8	11.2	10.8	9.4	10.8	10.7	10.2	9.8	8.5
6300	26.9	26.2	24.9	24.2	20.1	23.2	22.7	21.6	20.9	17.3	20.4	20.0	19.0	18.4	15.2	18.2	17.9	17.0	16.4	13.4	16.5	16.3	15.5	14.9	12.0
8000	40.1	38.5	37.0	36.0	29.0	35.2	33.8	32.4	31.5	25.1	31.1	30.1	28.7	27.9	22.0	27.9	27.1	25.8	25.0	19.7	25.3	24.7	23.5	22.7	17.7
10000	58.6	55.5	53.7	52.5	41.6	52.4	49.7	47.9	46.8	36.3	47.1	44.7	42.9	41.9	32.1	42.6	40.5	38.9	37.8	28.7	38.8	37.1	35.5	34.5	26.0

N D M H I N A L O N E T H R D B A N D C E N T E R F R E Q U E N C Y , H Z

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

21

ATTENUATION, IN DB, OVER 300-M PATHLENGTH FOR AN AIR TEMPERATURE OF 10 DEG C
 AIR PRESSURE = 1.0 STD. ATMOSPHERE; RELATIVE HUMIDITY, IN PERCENT, NOTED ABOVE COLUMNS
 METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH					20 PCT RH					30 PCT RH					40 PCT RH					50 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.1	.0	.0	.1	.0	.0	.0	.0	.1
80	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
100	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
125	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
160	.3	.3	.3	.3	.5	.2	.2	.2	.2	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
200	.4	.4	.4	.4	.7	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
250	.6	.6	.5	.5	1.0	.3	.3	.3	.3	.5	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
315	.8	.8	.8	.8	1.4	.5	.5	.4	.4	.7	.4	.4	.4	.4	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
400	1.2	1.2	1.1	1.1	1.9	.6	.6	.6	.6	1.0	.5	.5	.5	.5	.6	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
500	1.8	1.9	1.8	1.7	2.7	1.3	1.3	1.2	1.2	2.0	.9	.9	.9	.8	1.2	.8	.8	.8	.8	.7	.7	.7	.7	.7	.8
630	2.7	2.8	2.6	2.5	3.7	1.3	1.3	1.2	1.2	2.0	.9	.9	.9	.8	1.2	.8	.8	.8	.8	.7	.7	.7	.7	.7	.8
800	4.0	4.1	3.9	3.7	5.1	1.9	1.9	1.8	1.7	2.8	1.3	1.3	1.2	1.2	1.8	1.0	1.0	1.0	1.0	1.3	.9	.9	.9	.9	1.2
1000	5.8	5.8	5.6	5.4	6.4	2.8	2.9	2.7	2.6	3.9	1.8	1.8	1.7	1.7	2.6	1.4	1.4	1.4	1.3	1.9	1.2	1.3	1.2	1.2	1.5
1250	8.1	8.1	7.8	7.5	7.9	4.3	4.3	4.1	3.9	5.5	2.7	2.7	2.6	2.5	3.6	2.0	2.1	2.0	1.9	2.7	1.7	1.7	1.7	1.6	2.1
1600	10.7	10.7	10.4	10.1	9.9	6.5	6.5	6.2	5.9	7.8	4.1	4.1	3.9	3.8	5.3	3.0	3.0	2.9	2.8	3.9	2.5	2.5	2.4	2.3	3.1
2000	13.6	13.5	13.2	12.9	11.7	9.6	9.6	9.1	8.8	10.7	6.2	6.2	5.9	5.7	7.5	4.5	4.6	4.3	4.2	5.6	3.6	3.7	3.5	3.3	4.4
2500	16.3	16.3	16.0	15.7	13.5	14.0	13.9	13.3	12.9	14.9	9.4	9.4	8.9	8.6	10.5	6.9	6.9	6.6	6.3	7.9	5.5	5.5	5.2	5.0	6.3
3150	18.8	18.8	18.5	18.3	15.3	19.8	19.6	18.8	18.3	20.3	14.2	14.1	13.4	12.9	14.8	10.5	10.5	9.9	9.6	11.3	8.3	8.3	7.9	7.6	8.9
4000	20.9	20.9	20.6	20.4	17.2	26.9	26.6	25.7	25.1	26.2	21.0	20.7	19.7	19.1	20.8	15.9	15.8	15.0	14.5	16.2	12.7	12.6	11.9	11.5	13.1
5000	22.7	22.7	22.4	22.3	18.2	34.9	34.4	33.4	32.8	29.4	30.3	29.5	28.4	27.6	24.6	23.9	23.4	22.4	21.7	19.4	19.3	19.0	18.0	17.4	15.7
6300	24.3	24.3	24.1	24.0	20.3	43.0	42.5	41.6	41.0	36.1	42.1	40.9	39.5	38.6	33.9	35.3	34.1	32.7	31.9	26.9	29.1	28.3	27.0	26.2	21.9
8000	26.1	26.1	25.8	25.7	23.1	50.8	50.4	49.5	48.9	44.4	56.0	54.4	52.9	52.0	46.9	50.5	48.4	46.8	45.7	37.8	43.2	41.4	39.8	38.8	31.6
10000	28.2	28.2	27.9	27.7	26.6	58.0	57.7	56.9	56.3	53.2	71.3	69.4	67.9	66.9	60.9	69.6	66.5	64.6	63.5	53.4	62.6	59.3	57.4	56.2	45.1
	60 PCT RH					70 PCT RH					80 PCT RH					90 PCT RH					100 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
80	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
100	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
125	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
160	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
200	.3	.3	.3	.3	.5	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
250	.4	.4	.4	.4	.7	.4	.4	.4	.4	.5	.4	.4	.4	.4	.5	.4	.4	.4	.4	.5	.4	.4	.4	.4	.5
315	.5	.5	.5	.5	1.0	.5	.5	.5	.5	.7	.5	.5	.5	.5	.7	.5	.5	.5	.5	.7	.5	.5	.5	.5	.7
400	.8	.8	.8	.8	1.4	.8	.8	.8	.8	1.0	.8	.8	.8	.8	1.2	.8	.8	.8	.8	1.0	.8	.8	.8	.8	1.2
500	1.2	1.2	1.1	1.1	1.9	.9	.9	.9	.9	1.2	.9	.9	.9	.9	1.2	.9	.9	.9	.9	1.2	.9	.9	.9	.9	1.2
630	1.8	1.9	1.8	1.7	2.7	1.3	1.3	1.2	1.2	2.0	.9	.9	.9	.8	1.2	.8	.8	.8	.8	1.0	.9	.9	.9	.9	1.2
800	4.0	4.1	3.9	3.7	5.1	1.9	1.9	1.8	1.7	2.8	1.3	1.3	1.2	1.2	1.8	1.0	1.0	1.0	1.0	1.3	.9	.9	.9	.9	1.2
1000	5.8	5.8	5.6	5.4	6.4	2.8	2.9	2.7	2.6	3.9	1.8	1.8	1.7	1.7	2.6	1.4	1.4	1.4	1.3	1.9	1.2	1.3	1.2	1.2	1.5
1250	8.1	8.1	7.8	7.5	7.9	4.3	4.3	4.1	3.9	5.5	2.7	2.7	2.6	2.5	3.6	2.0	2.1	2.0	1.9	2.7	1.7	1.7	1.7	1.6	2.1
1600	10.7	10.7	10.4	10.1	9.9	6.5	6.5	6.2	5.9	7.8	4.1	4.1	3.9	3.8	5.3	3.0	3.0	2.9	2.8	3.9	2.5	2.5	2.4	2.3	3.1
2000	13.6	13.5	13.2	12.9	11.7	9.6	9.6	9.1	8.8	10.7	6.2	6.2	5.9	5.7	7.5	4.5	4.6	4.3	4.2	5.6	3.6	3.7	3.5	3.3	4.4
2500	16.3	16.3	16.0	15.7	13.5	14.0	13.9	13.3	12.9	14.9	9.4	9.4	8.9	8.6	10.5	6.9	6.9	6.6	6.3	7.9	5.5	5.5	5.2	5.0	6.3
3150	18.8	18.8	18.5	18.3	15.3	19.8	19.6	18.8	18.3	20.3	14.2	14.1	13.4	12.9	14.8	10.5	10.5	9.9	9.6	11.3	8.3	8.3	7.9	7.6	8.9
4000	20.9	20.9	20.6	20.4	17.2	26.9	26.6	25.7	25.1	26.2	21.0	20.7	19.7	19.1	20.8	15.9	15.8	15.0	14.5	16.2	12.7	12.6	11.9	11.5	13.1
5000	22.7	22.7	22.4	22.3	18.2	34.9	34.4	33.4	32.8	29.4	30.3	29.5	28.4	27.6	24.6	23.9	23.4	22.4	21.7	19.4	19.3	19.0	18.0	17.4	15.7
6300	24.3	24.3	24.1	24.0	20.3	43.0	42.5	41.6	41.0	36.1	42.1	40.9	39.5	38.6	33.9	35.3	34.1	32.7	31.9	26.9	29.1	28.3	27.0	26.2	21.9
8000	26.1	26.1	25.8	25.7	23.1	50.8	50.4	49.5	48.9	44.4	56.0	54.4	52.9	52.0	46.9	50.5	48.4	46.8	45.7	37.8	43.2	41.4	39.8	38.8	31.6
10000	28.2	28.2	27.9	27.7	26.6	58.0	57.7	56.9	56.3	53.2	71.3	69.4	67.9	66.9	60.9	69.6	66.5	64.6	63.5	53.4	62.6	59.3	57.4	56.2	45.1
	60 PCT RH					70 PCT RH					80 PCT RH					90 PCT RH					100 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
80	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
100	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
125	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
160	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2	.2</														

ATTENUATION, IN DB, OVER 300-M PATHLENGTH FOR AN AIR TEMPERATURE OF 11 DEG C
AIR PRESSURE = 1.0 STD. ATMOSPHERE/ RELATIVE HUMIDITY, IN PERCENT, NOTED ABOVE COLUMNS

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH				20 PCT RH				30 PCT RH				40 PCT RH				50 PCT RH			
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
63	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
80	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
100	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
125	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
160	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
200	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
250	.5	.5	.5	.5	.5	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
315	.8	.8	.8	.8	.8	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
400	1.2	1.2	1.2	1.2	1.2	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6
500	1.7	1.7	1.7	1.7	1.7	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9
630	2.6	2.6	2.6	2.6	2.6	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
800	3.9	3.9	3.9	3.9	3.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
1000	5.6	5.6	5.6	5.6	5.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
1250	7.9	7.9	7.9	7.9	7.9	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1600	10.8	10.8	10.8	10.8	10.8	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
2000	13.9	13.9	13.9	13.9	13.9	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2
2500	17.1	17.1	17.1	17.1	17.1	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
3150	20.0	20.0	20.0	20.0	20.0	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4
4000	22.6	22.6	22.6	22.6	22.6	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8
5000	24.7	24.7	24.7	24.7	24.7	35.4	35.4	35.4	35.4	35.4	35.4	35.4	35.4	35.4	35.4	35.4	35.4	35.4	35.4	35.4
6300	26.7	26.7	26.7	26.7	26.7	44.6	44.6	44.6	44.6	44.6	44.6	44.6	44.6	44.6	44.6	44.6	44.6	44.6	44.6	44.6
8000	28.6	28.6	28.6	28.6	28.6	53.1	53.1	53.1	53.1	53.1	53.1	53.1	53.1	53.1	53.1	53.1	53.1	53.1	53.1	53.1
10000	30.9	31.0	30.6	30.4	28.9	62.2	61.7	60.7	60.0	56.4	73.1	70.8	69.1	68.1	62.1	69.1	65.8	63.9	62.7	51.7

	60 PCT RH				70 PCT RH				80 PCT RH				90 PCT RH				100 PCT RH			
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
80	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
100	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
125	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
160	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
200	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
250	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
315	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
400	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6
500	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8
630	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9
800	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
1000	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1250	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
1600	3.0	3.0	3.0	3.0	3.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
2000	4.4	4.4	4.4	4.4	4.4	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
2500	6.6	6.6	6.6	6.6	6.6	5.7	5.8	5.5	5.3	6.0	5.1	5.2	4.9	4.8	5.4	4.7	4.8	4.5	4.3	4.1
3150	10.0	10.0	9.5	9.1	10.3	8.6	8.6	8.2	7.9	8.7	7.7	7.7	7.3	7.0	7.7	7.0	6.6	6.4	6.2	5.9
4000	15.3	15.1	14.4	13.9	12.5	13.2	13.1	12.4	12.0	10.5	11.6	11.6	11.0	10.6	9.2	10.5	10.5	9.9	9.6	8.7
5000	23.4	22.9	21.8	21.1	17.5	20.2	19.8	18.8	18.2	15.0	17.8	17.5	16.6	16.1	13.0	16.0	15.8	15.0	14.4	13.2
6300	35.6	34.2	32.7	31.8	25.5	30.9	29.8	28.4	27.6	21.9	27.3	26.5	25.2	24.4	19.2	24.5	23.9	22.7	22.0	20.0
8000	53.3	50.4	48.5	47.4	36.9	46.8	44.4	42.7	41.6	32.0	41.7	39.7	38.0	37.0	28.1	37.6	35.9	34.4	33.4	30.5
10000																				

ATTENUATION, IN DB, OVER 300-M PATHLENGTH FOR AN AIR TEMPERATURE OF 12 DEG C
AIR PRESSURE = 1.0 STD. ATMOSPHERE; RELATIVE HUMIDITY, IN PERCENT, NOTED ABOVE COLUMNS

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH					20 PCT RH					30 PCT RH					40 PCT RH					50 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
80	.1	.1	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
100	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
125	.2	.2	.2	.3	.4	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
160	.3	.3	.3	.3	.4	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
200	.4	.4	.4	.3	.6	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
250	.5	.5	.5	.5	.9	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
315	.8	.7	.7	.7	1.3	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
400	1.1	1.1	1.1	1.0	1.8	.6	.6	.6	.6	.6	.7	.7	.7	.7	.8	.6	.6	.6	.6	.7	.6	.6	.6	.6	.7
500	1.6	1.7	1.6	1.5	2.5	.8	.8	.8	.8	.8	.9	.9	.9	.9	1.1	.8	.8	.8	.8	.9	.8	.8	.8	.8	.9
630	2.5	2.5	2.4	2.3	3.4	1.2	1.2	1.1	1.1	1.1	1.2	1.2	1.1	1.1	1.4	1.0	1.0	1.0	1.0	1.3	1.0	1.0	.9	.9	1.1
800	3.7	3.7	3.5	3.4	4.9	1.7	1.7	1.6	1.6	1.6	1.7	1.7	1.6	1.6	2.3	1.4	1.4	1.3	1.3	1.7	1.2	1.3	1.2	1.2	1.5
1000	5.4	5.4	5.2	5.0	6.6	2.5	2.6	2.4	2.3	2.3	2.5	2.5	2.4	2.3	3.3	1.9	1.9	1.9	1.8	2.4	1.7	1.7	1.6	1.6	2.0
1250	7.7	7.8	7.4	7.2	8.4	3.8	3.9	3.7	3.5	3.5	3.7	3.7	3.5	3.4	4.8	2.8	2.8	2.7	2.6	3.5	2.3	2.4	2.2	2.2	2.8
1600	10.7	10.7	10.3	10.0	10.6	5.8	5.8	5.5	5.3	5.3	5.6	5.6	5.3	5.1	6.9	4.1	4.2	3.9	3.8	5.1	3.4	3.4	3.2	3.1	4.0
2000	14.1	14.1	13.6	13.3	12.9	8.7	8.7	8.3	8.0	8.0	8.5	8.5	8.0	7.7	9.6	6.2	6.2	5.9	5.7	7.2	5.0	5.0	4.8	4.6	5.6
2500	17.7	17.6	17.2	16.9	15.4	13.0	12.9	12.3	11.9	11.8	12.9	12.8	12.1	11.7	13.7	9.5	9.5	9.0	8.6	10.3	7.5	7.5	7.1	6.9	8.2
3150	21.2	21.1	20.7	20.4	18.0	18.8	18.6	17.8	17.3	17.3	19.3	19.3	18.1	17.5	19.5	14.4	14.3	13.6	13.1	14.9	11.5	11.4	10.8	10.4	11.8
4000	24.2	24.2	23.8	23.6	20.5	26.4	26.0	25.0	24.4	24.4	26.8	26.8	25.0	24.4	26.8	21.9	21.4	20.4	19.8	17.8	17.5	17.3	16.4	15.8	14.2
5000	26.9	26.8	26.5	26.3	21.8	35.7	35.0	33.9	33.2	33.2	37.7	37.7	35.0	34.4	37.1	32.8	31.7	30.3	29.5	24.9	26.7	25.9	24.7	24.0	20.1
6300	29.2	29.2	28.9	28.7	24.2	45.8	45.0	43.9	43.1	43.1	48.4	48.4	45.0	44.4	48.4	40.7	39.4	38.0	37.1	31.6	40.1	38.4	36.9	35.9	29.1
8000	31.4	31.4	31.1	30.9	27.4	56.2	55.4	54.2	53.5	53.5	56.3	56.3	54.2	53.5	56.3	48.0	45.9	44.2	43.2	35.6	48.0	46.1	44.4	43.4	36.9
10000	33.9	33.9	33.6	33.3	31.3	66.2	65.4	64.3	63.6	63.6	74.3	74.3	71.7	69.9	74.3	68.2	64.7	62.7	61.6	50.2	59.3	56.0	54.1	52.9	41.9
	60 PCT RH					70 PCT RH					80 PCT RH					90 PCT RH					100 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
80	.1	.1	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
100	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
125	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2
160	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3
200	.2	.2	.2	.2	.4	.2	.2	.2	.2	.4	.2	.2	.2	.2	.4	.2	.2	.2	.2	.4	.2	.2	.2	.2	.4
250	.3	.3	.3	.3	.5	.3	.3	.3	.3	.5	.3	.3	.3	.3	.5	.3	.3	.3	.3	.5	.3	.3	.3	.3	.5
315	.4	.4	.4	.4	.7	.4	.4	.4	.4	.7	.4	.4	.4	.4	.7	.4	.4	.4	.4	.7	.4	.4	.4	.4	.7
400	.5	.5	.5	.5	.9	.5	.5	.5	.5	.9	.5	.5	.5	.5	.9	.5	.5	.5	.5	.9	.5	.5	.5	.5	.9
500	.7	.7	.6	.6	1.3	.7	.7	.7	.6	1.3	.7	.7	.7	.6	1.3	.7	.7	.7	.6	1.3	.7	.7	.7	.6	1.3
630	.8	.8	.8	.8	1.8	.8	.8	.8	.8	1.8	.8	.8	.8	.8	1.8	.8	.8	.8	.8	1.8	.8	.8	.8	.8	1.8
800	1.0	1.0	.9	.9	2.5	1.0	1.0	.9	.9	2.5	1.0	1.0	.9	.9	2.5	1.0	1.0	.9	.9	2.5	1.0	1.0	.9	.9	2.5
1000	1.2	1.2	1.2	1.1	3.4	1.2	1.2	1.2	1.1	3.4	1.2	1.2	1.2	1.1	3.4	1.2	1.2	1.2	1.1	3.4	1.2	1.2	1.2	1.1	3.4
1250	1.5	1.5	1.5	1.4	4.9	1.5	1.5	1.5	1.4	4.9	1.5	1.5	1.5	1.4	4.9	1.5	1.5	1.5	1.4	4.9	1.5	1.5	1.5	1.4	4.9
1600	2.1	2.1	2.0	2.0	6.6	2.0	2.0	1.9	1.8	6.6	2.0	2.0	1.9	1.8	6.6	2.0	2.0	1.9	1.8	6.6	2.0	2.0	1.9	1.8	6.6
2000	2.9	2.9	2.8	2.7	8.4	2.7	2.7	2.6	2.5	8.4	2.7	2.7	2.6	2.5	8.4	2.7	2.7	2.6	2.5	8.4	2.7	2.7	2.6	2.5	8.4
2500	4.2	4.3	4.1	3.9	10.6	3.8	3.8	3.6	3.5	10.6	3.5	3.5	3.4	3.2	10.6	3.3	3.3	3.2	3.1	10.6	3.3	3.3	3.2	3.1	10.6
3150	6.3	6.4	6.0	5.8	15.4	5.5	5.6	5.3	5.1	15.4	5.0	5.0	4.8	4.6	15.4	4.6	4.7	4.4	4.3	15.4	4.4	4.4	4.2	4.1	15.4
4000	9.6	9.6	9.1	8.7	20.5	8.3	8.3	7.9	7.6	20.5	7.4	7.4	7.1	6.8	20.5	6.8	6.8	6.5	6.2	20.5	6.3	6.3	6.0	5.8	20.5
5000	14.6	14.5	13.7	13.2	26.4	12.6	12.5	11.9	11.5	26.4	11.2	11.1	10.6	10.2	26.4	10.1	10.1	9.6	9.2	26.4	9.3	9.3	8.8	8.5	26.4
6300	22.3	21.9	20.8	20.1	35.7	19.3	18.9	18.0	17.4	35.7	17.0	16.8	15.9	15.4	35.7	15.3	15.2	14.4	13.9	35.7	14.0	13.9	13.2	12.7	35.7
8000	34.1	32.8	31.3	30.4	45.8	29.5	28.6	27.2	26.4	45.8	26.1	25.4	24.2	23.4	45.8	23.5	22.9	21.8	21.1	45.8	21.4	21.0	19.9	19.3	45.8
10000	51.4	48.6	46.7	45.6	56.2	45.0	42.7	41.0	39.9	56.2	40.0	38.2	36.5	35.5	56.2	36.0	34.5	33.0	32.1	56.2	32.9	31.6	30.2	29.3	56.2

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

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METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH				20 PCT RH				30 PCT RH				40 PCT RH				50 PCT RH			
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
63	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
80	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
100	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
125	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
160	.3	.3	.3	.3	.4	.2	.2	.2	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
200	.4	.4	.3	.3	.4	.2	.2	.2	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
I 250	.5	.5	.5	.5	.8	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
N 315	.7	.7	.7	.6	1.2	.5	.5	.5	.5	.6	.5	.5	.5	.5	.6	.6	.6	.6	.6	.6
A 400	1.0	1.0	1.0	.9	1.7	.8	.6	.6	.6	.8	.7	.7	.7	.7	.8	.7	.7	.7	.7	.7
L 500	1.5	1.5	1.4	1.4	2.3	1.1	1.1	1.1	1.1	1.6	.9	.9	.8	.8	1.1	.8	.8	.8	.8	.9
O 630	2.2	2.2	2.1	2.0	3.2	1.1	1.1	1.1	1.0	1.6	.9	.9	.8	.8	1.1	.8	.8	.8	.8	.9
O 800	3.3	3.4	3.2	3.1	4.5	1.6	1.6	1.5	1.4	2.3	1.1	1.2	1.1	1.1	1.5	1.0	1.0	1.0	1.0	1.1
N 1000	5.0	5.0	4.7	4.6	6.2	2.3	2.3	2.2	2.1	3.3	1.6	1.6	1.5	1.5	2.1	1.4	1.4	1.3	1.3	1.5
E 1250	7.2	7.3	6.9	6.7	8.5	3.4	3.5	3.3	3.2	4.6	2.3	2.3	2.2	2.1	3.0	1.8	1.9	1.8	1.7	2.2
1600	10.3	10.3	9.9	9.6	11.2	5.2	5.2	4.9	4.8	6.2	3.4	3.4	3.2	3.1	4.4	2.6	2.6	2.5	2.4	3.2
T 2000	14.1	14.1	13.6	13.2	13.8	7.9	7.9	7.5	7.2	9.4	5.0	5.1	4.8	4.6	6.2	3.8	3.8	3.6	3.5	4.6
M 2500	18.5	18.4	17.9	17.5	16.9	11.8	11.8	11.2	10.8	13.0	7.6	7.7	7.3	7.0	8.9	5.7	5.7	5.4	5.2	6.5
I 3150	23.1	22.9	22.4	22.0	20.3	17.5	17.3	16.5	16.0	18.0	11.6	11.6	11.0	10.6	12.6	8.6	8.6	8.1	7.8	9.4
R 4000	27.4	27.3	26.8	26.4	23.9	25.3	24.8	23.8	23.1	25.5	17.6	17.4	16.5	16.0	18.1	13.1	13.0	12.3	11.9	13.6
K 5000	31.2	31.1	30.7	30.4	25.6	35.3	34.5	33.3	32.5	30.4	26.3	25.7	24.5	23.8	21.6	19.9	19.6	18.6	18.0	16.4
D 6300	34.5	34.5	34.1	33.8	28.9	47.2	46.1	44.7	43.8	39.9	38.6	37.3	35.8	34.9	29.9	30.1	29.2	27.9	27.1	23.0
B 8000	37.6	37.5	37.1	36.9	32.5	60.2	58.9	57.5	56.6	51.0	54.9	52.6	50.9	49.8	41.9	44.9	42.9	41.3	40.2	33.1
A 10000	40.6	40.6	40.2	39.9	37.0	73.4	72.1	70.7	69.8	64.1	75.2	71.8	69.9	68.7	59.2	65.5				

ATTENUATION, IN DB, OVER 300-M PATHLENGTH FOR AN AIR TEMPERATURE OF 15 DEG C
AIR PRESSURE = 1.0 STD. ATMOSPHERE; RELATIVE HUMIDITY, IN PERCENT, NOTED ABOVE COLUMNS

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH					20 PCT RH					30 PCT RH					40 PCT RH					50 PCT RH					100 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.1	.1	.1	.1	.1	.0	.1	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
80	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
100	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
125	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
160	.3	.3	.3	.3	.4	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
200	.4	.4	.3	.3	.6	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
250	.5	.5	.4	.4	.8	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
315	.7	.6	.6	.6	1.1	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
400	1.0	.9	.9	.9	1.6	.6	.6	.6	.6	.8	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6
500	1.4	1.4	1.3	2.2	.8	.8	.8	.8	.7	1.1	.7	.7	.7	.7	.8	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7
630	2.1	2.1	2.0	3.1	1.1	1.1	1.1	1.0	1.0	1.5	.9	.9	.9	.8	1.0	.8	.9	.8	.8	.9	.9	.9	.9	.8	.8	.9	.9	.8	.8	.9
800	3.2	3.2	3.0	2.9	4.4	1.5	1.5	1.4	1.4	2.2	1.1	1.2	1.1	1.1	1.4	1.1	1.1	1.0	1.0	1.2	1.0	1.1	1.0	1.0	1.0	1.1	1.0	1.0	1.0	1.2
1000	4.7	4.7	4.5	4.3	6.0	2.2	2.2	2.1	2.0	3.1	1.6	1.6	1.5	1.5	2.0	1.4	1.4	1.3	1.3	1.6	1.3	1.3	1.3	1.3	1.2	1.3	1.2	1.2	1.5	1.5
1250	7.0	7.0	6.6	6.4	8.4	3.3	3.3	3.1	3.0	4.4	2.2	2.2	2.1	2.1	2.8	1.8	1.8	1.8	1.8	1.7	2.2	1.7	1.7	1.6	1.6	1.9	1.6	1.6	1.6	1.9
1600	10.0	10.0	9.6	9.3	11.4	4.9	5.0	4.7	4.5	6.4	3.2	3.2	3.1	3.0	4.2	2.5	2.6	2.4	2.4	3.1	2.2	2.2	2.2	2.2	2.1	2.6	2.1	2.1	2.6	2.6
2000	14.0	13.9	13.4	13.0	14.2	7.5	7.5	7.1	6.8	9.0	4.8	4.8	4.6	4.4	6.0	3.7	3.7	3.5	3.4	4.4	3.1	3.1	3.0	2.9	3.6	3.1	3.0	2.9	3.6	3.6
2500	18.7	18.6	18.0	17.5	17.5	11.3	11.2	10.6	10.3	12.6	7.3	7.3	6.9	6.6	8.4	5.4	5.5	5.2	5.0	6.2	4.5	4.5	4.3	4.1	4.9	4.0	3.9	3.8	4.1	4.9
3150	23.8	23.6	23.0	22.6	21.3	16.8	16.6	15.8	15.3	17.5	11.0	11.0	10.4	10.1	12.1	8.2	8.2	7.8	7.5	9.0	6.6	6.7	6.3	6.1	7.0	5.5	5.4	5.3	6.1	7.0
4000	28.6	28.6	28.0	27.6	25.5	24.5	24.1	23.0	22.4	24.6	16.8	16.6	15.7	15.2	17.4	12.5	12.4	11.7	11.3	13.0	10.0	10.0	9.5	9.1	10.3	7.5	7.4	7.3	8.1	10.3
5000	33.3	33.2	32.7	32.3	27.6	34.8	33.9	32.6	31.8	29.2	25.2	24.6	23.5	22.8	20.8	19.0	18.7	17.8	17.2	15.7	15.2	15.1	14.3	13.8	12.5	10.5	10.4	10.3	11.2	12.5
6300	37.3	37.2	36.8	36.4	31.2	47.3	46.0	44.6	43.7	39.9	37.4	36.0	34.6	33.7	28.9	28.9	28.0	26.7	25.9	22.0	23.3	22.7	21.6	20.9	17.6	13.5	13.4	13.3	14.2	17.6
8000	40.9	40.8	40.4	40.1	35.5	61.6	59.9	58.4	57.5	52.2	53.8	51.4	49.7	48.6	40.7	43.3	41.4	39.7	38.7	31.8	35.5	34.1	32.6	31.7	25.7	18.5	18.4	18.3	19.2	25.7
10000	44.4	44.3	43.9	43.6	40.2	76.4	74.7	73.2	72.2	66.1	74.9	71.2	69.2	68.0	57.4	63.7	60.0	58.0	56.8	45.7	53.5	50.5	48.6	47.5	37.3	28.5	28.4	28.3	29.2	37.3
50	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.1	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
80	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
100	.1	.1	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
125	.1	.1	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
160	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
200	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
250	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
315	.5	.5	.4	.4	.8	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
400	.6	.6	.6	.6	1.1	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
500	.7	.7	.7	.7	1.6	.6	.6	.6	.6	.8	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6
630	.9	.9	.9	.9	2.2	.8	.8	.8	.8	1.1	.7	.7	.7	.7	.8	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7
800	1.1	1.1	1.0	1.0	1.2	1.1	1.1	1.1	1.1	1.5	.9	.9	.9	.9	1.0	.8	.9	.8	.8	.9	.9	.9	.9	.8	.8	.9	.9	.8	.8	.9
1000	1.3	1.3	1.2	1.2	1.4	1.3	1.3	1.3	1.3	1.7	1.1	1.2	1.1	1.1	1.4	1.1	1.1	1.0	1.0	1.2	1.0	1.1	1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.2
1250	1.6	1.6	1.5	1.5	1.8	1.6	1.6	1.6	1.6	1.8	1.6	1.6	1.6	1.6	1.8	1.7	1.7	1.6	1.6	1.8	1.7	1.7	1.7	1.7	1.6	1.8	1.7	1.7	1.7	1.8
1600	2.1	2.1	2.0	2.0	2.4	2.0	2.0	2.0	1.9	2.4	2.0	2.0	2.0	1.9	2.4	2.0	2.0	2.0	1.9	2.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4
2000	2.8	2.8	2.7	2.6	3.2	2.6	2.7	2.6	2.5	3.0	2.6	2.6	2.5	2.4	3.0	2.5	2.5	2.5	2.4	3.0	2.5	2.5	2.5	2.5	2.4	3.0	2.5	2.5	2.5	3.0
2500	3.9	4.0	3.8	3.7	4.3	3.6	3.6	3.5	3.4	4.0	3.4	3.4	3.3	3.2	3.8	3.0	3.0	3.0	3.0	3.8	3.2	3.2	3.2	3.2	3.1	3.8	3.2	3.2	3.2	3.8
3150	5.7	5.7	5.4	5.3	6.0	5.1	5.1	5.1	4.9	5.4	4.7	4.8	4.5	4.4	5.4	4.5	4.5	4.3	4.2	4.8	4.3	4.3	4.3	4.1	4.0	4.8	4.3	4.3	4.1	4.8
4000	8.5	8.5	8.0	7.8	8.5	7.5	7.5	7.1	6.9	7.5	6.8	6.8	6.5	6.3	6.9	6.3	6.3	6.0	5.8	6.5	6.0	6.0	5.7	5.6	6.3	5.6	5.6	5.6	5.6	6.3
5000	12.8	12.7	12.1	11.6	10.3	11.2	11.1	10.6	10.2	8.9	10.0	10.0	9.5	9.2	8.1	9.2	9.2	8.8	8.5	7.7	8.6	8.6	8.2	7.9	7.3	8.6	8.6	8.2	7.9	7.3
6300	19.5	19.2	18.3	17.6	14.6	17.0	16.8	15.9	15.4	12.5	15.1	15.0	14.2	13.7	11.2	13.7	13.7	13.0	12.5	10.3	12.7	12.6	12.0	11.6	9.8	12.7	12.6	12.0	11.6	9.8
8000	29.9	28.9	27.6	26.8	21.5	26.0	25.3	24.1	23.3	18.3	23.1	22.6	21.5	20.8	16.1	20.9	20.5	19.5	18.8	14.6	19.2	18.9	18.0	17.4	13.6	19.2	18.9	18.0	17.4	13.6
10000	45.7	43.3	41.6	40.5	31.2	39.8	38.0	36.4	35.4	27.0	35.4	34.0	32.5	31.5	23.5	32.0	30.8	29.4	28.6	21.2	29.3	28.4	27.1	26.2	19.5	29.3	28.4	27.1	26.2	19.5

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH				20 PCT RH				30 PCT RH				40 PCT RH				50 PCT RH			
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
80	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
100	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
125	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
160	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
200	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
250	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
315	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
400	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
500	13	14	13	12	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
630	20	20	19	18	3	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
800	30	30	29	28	4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1000	45	45	44	43	5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1250	67	67	66	65	8	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3
1600	97	97	96	95	11	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
2000	138	137	136	135	14	5	7	7	7	7	7	7	7	7	7	7	7	7	7	7
2500	187	186	185	184	18	0	10	10	10	10	10	10	10	10	10	10	10	10	10	10
3150	243	241	239	237	22	2	16	15	14	13	12	11	10	9	8	7	6	5	4	3
4000	300	298	296	294	27	0	23	22	21	20	19	18	17	16	15	14	13	12	11	10
5000	354	352	350	348	31	0	34	33	32	31	30	29	28	27	26	25	24	23	22	21
6300	401	400	399	398	33	7	45	44	43	42	41	40	39	38	37	36	35	34	33	32
8000	444	443	442	441	38	6	62	61	60	59	58	57	56	55	54	53	52	51	50	49
10000	484	483	482	481	43	7	79	78	77	76	75	74	73	72	71	70	69	68	67	66

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

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ATTENUATION, IN DB, OVER 300-M PATHLENGTH FOR AN AIR TEMPERATURE OF 18 DEG C
AIR PRESSURE = 1.0 STD. ATMOSPHERE) RELATIVE HUMIDITY, IN PERCENT, NOTED ABOVE COLUMNS

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH					20 PCT RH					30 PCT RH					40 PCT RH					50 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
80	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
100	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
125	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
160	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
200	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
250	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
315	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6
400	.9	.9	.8	.8	.8	.8	.8	.8	.8	.7	.8	.7	.7	.7	.8	.8	.8	.8	.8	.7	.8	.8	.8	.8	.8
500	1.2	1.2	1.2	1.1	1.1	1.0	1.0	1.0	1.0	1.0	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	1.0	1.0	1.0	1.0	1.0
630	1.8	1.8	1.7	1.7	1.7	1.4	1.4	1.4	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2
800	2.7	2.7	2.6	2.5	2.5	2.0	2.0	2.0	1.9	1.8	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
1000	4.0	4.1	3.9	3.7	3.7	2.8	2.9	2.7	2.6	2.6	2.1	2.1	2.0	1.9	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.8	1.7	1.7	1.7
1250	6.1	6.1	5.8	5.6	5.6	4.2	4.3	4.0	3.9	3.9	2.9	2.9	2.8	2.7	2.6	2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.7	2.7	2.7
1600	9.0	9.0	8.5	8.3	8.3	6.4	6.4	6.1	5.8	5.8	4.2	4.3	4.1	3.9	3.8	3.4	3.4	3.3	3.3	3.3	3.0	3.0	2.9	2.8	2.8
2000	13.0	13.0	12.4	12.0	11.8	9.7	9.7	9.2	8.8	8.8	6.3	6.3	6.0	5.8	5.7	4.9	4.9	4.7	4.5	4.5	4.2	4.2	4.0	3.9	3.9
2500	18.3	18.2	17.4	17.0	16.9	14.6	14.5	13.8	13.3	13.3	9.5	9.5	9.0	8.7	8.6	7.2	7.2	6.9	6.6	6.6	6.0	6.0	5.7	5.5	5.5
3150	24.7	24.4	23.6	23.1	23.7	21.9	21.5	20.5	19.9	19.9	14.5	14.4	13.7	13.2	13.2	10.9	10.9	10.3	9.9	9.9	8.9	8.9	8.4	8.1	8.1
4000	31.8	31.4	30.6	30.0	29.5	32.1	31.2	30.0	29.1	28.7	22.1	21.6	20.6	19.9	18.5	16.6	16.4	15.5	15.0	13.8	13.4	13.3	12.6	12.2	10.9
5000	38.9	38.6	37.7	37.2	36.6	35.3	34.2	32.6	31.7	31.2	25.3	24.6	23.5	22.7	21.4	20.4	20.1	19.4	18.4	17.4	20.4	20.1	19.1	18.4	15.4
6300	45.6	45.3	44.5	44.0	43.5	45.8	44.2	42.6	41.7	41.2	33.3	32.2	30.8	29.9	28.5	25.3	24.6	23.5	22.7	21.4	31.3	30.2	28.8	27.9	22.7
8000	51.5	51.3	50.6	50.2	49.9	52.9	50.4	48.7	47.6	47.0	49.4	47.0	45.3	44.2	43.1	38.5	36.8	35.3	34.3	28.4	47.7	45.1	43.3	42.2	33.0
10000	57.0	56.8	56.1	55.7	55.5	62.6	59.5	57.6	56.5	56.0	71.6	67.3	65.3	64.0	62.9	57.8	54.4	52.4	51.3	40.9					

	60 PCT RH					70 PCT RH					80 PCT RH					90 PCT RH					100 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
63	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
80	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
100	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
125	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
160	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
200	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
250	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
315	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6
400	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8
500	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
630	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
800	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1000	1.7	1.8	1.7	1.7	1.7	1.8	1.8	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9
1250	2.2	2.2	2.1	2.1	2.1	2.5	2.2	2.2	2.1	2.1	2.5	2.2	2.2	2.2	2.2	2.5	2.2	2.2	2.2	2.2	2.5	2.3	2.3	2.2	2.2
1600	2.8	2.8	2.7	2.7	2.7	3.1	2.7	2.8	2.7	2.6	3.1	2.7	2.7	2.7	2.6	3.1	2.7	2.8	2.7	2.6	3.1	2.8	2.8	2.7	2.7
2000	3.8	3.8	3.7	3.7	3.7	4.1	3.6	3.6	3.5	3.4	4.0	3.5	3.5	3.4	3.4	4.0	3.4	3.5	3.4	3.3	4.0	3.4	3.5	3.4	3.3
2500	5.3	5.3	5.1	4.9	4.9	5.6	4.9	4.9	4.7	4.6	5.2	4.6	4.6	4.5	4.4	5.1	4.5	4.5	4.4	4.2	5.1	4.4	4.4	4.3	4.2
3150	7.7	7.7	7.3	7.1	7.0	8.0	7.0	7.0	6.6	6.4	8.1	7.1	6.4	6.5	6.2	8.6	6.1	6.1	5.9	5.7	8.2	5.9	5.7	5.5	5.4
4000	11.4	11.4	10.8	10.5	9.2	10.2	10.2	9.7	9.3	8.3	13.7	9.3	8.8	8.6	7.8	12.6	8.6	8.7	8.3	8.0	11.8	8.2	7.9	7.6	7.6
5000	17.3	17.1	16.2	15.7	12.9	15.2	15.1	14.3	13.8	11.4	20.7	15.2	14.3	13.8	12.5	20.7	14.7	14.7	14.7	14.7	26.5	17.5	17.3	16.5	16.0
6300	26.4	25.7	24.5	23.7	18.8	23.1	22.6	21.5	20.8	16.3	31.6	20.3	19.3	18.7	17.2	31.6	18.9	18.6	17.7	17.2	31.6	17.5	17.3	16.5	16.0
8000	40.5	38.6	37.0	36.0	27.7	35.4	34.0	32.5	31.5	23.7	31.6	30.5	29.1	28.2	21.2	38.8	27.9	26.6	25.8	19.5	26.5	25.8	24.6	23.8	18.4

N O M H I N A L O E T H R D B A M D C E N T E R F R E Q U E N Z

ATTENUATION, IN DB, OVER 300-M PATHLENGTH FOR AN AIR TEMPERATURE OF 19 DEG C
AIR PRESSURE = 1.0 STD. ATMOSPHERE; RELATIVE HUMIDITY, IN PERCENT, NOTED ABOVE COLUMNS

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

[illegible]

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

[illegible]

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

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METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH				20 PCT RH				30 PCT RH				40 PCT RH				50 PCT RH			
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
80	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1
100	.2	.2	.2	.2	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2
125	.2	.2	.2	.2	.2	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3
160	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
200	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
250	.5	.5	.5	.5	.5	.6	.6	.6	.6	.5	.6	.6	.6	.6	.5	.5	.5	.5	.5	.5
315	.6	.6	.6	.6	.6	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7
400	.8	.8	.8	.8	.8	.9	.9	.9	.9	.8	.9	.9	.9	.9	.8	.9	.9	.9	.9	.8
500	1.1	1.1	1.0	1.0	1.7	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.0	1.1	1.1	1.1	1.0	1.0
630	1.5	1.5	1.5	1.4	2.4	1.0	1.0	1.0	1.0	1.2	1.0	1.1	1.0	1.0	1.3	1.4	1.4	1.3	1.3	1.3
800	2.2	2.2	2.1	2.0	3.4	1.3	1.4	1.3	1.3	1.6	1.3	1.3	1.2	1.2	1.5	1.7	1.6	1.6	1.6	1.7
1000	3.3	3.3	3.1	3.0	4.8	1.8	1.8	1.7	1.7	2.3	1.6	1.6	1.5	1.5	1.7	1.6	1.6	1.6	1.6	1.7
1250	4.9	5.0	4.7	4.5	6.7	2.5	2.5	2.4	2.3	3.2	2.0	2.0	2.0	1.9	2.3	1.9	1.9	1.9	1.9	2.1
1600	7.4	7.5	7.1	6.8	9.6	3.6	3.6	3.5	3.4	4.8	2.7	2.7	2.6	2.5	3.2	2.5	2.5	2.4	2.3	2.7
2000	11.1	11.1	10.5	10.2	13.2	5.3	5.3	5.1	4.9	6.8	3.7	3.8	3.6	3.5	4.4	3.2	3.3	3.1	3.0	3.4
2500	16.4	16.2	15.5	15.0	18.1	8.0	8.0	7.6	7.3	9.6	5.4	5.5	5.2	5.0	6.2	4.5	4.5	4.3	4.2	4.8
3150	23.5	23.1	22.2	21.6	25.2	12.1	12.0	11.4	11.0	13.7	8.1	8.1	7.7	7.4	8.9	6.4	6.4	6.1	5.9	6.6
4000	32.5	31.8	30.7	30.0	33.0	18.3	18.1	17.2	16.6	19.7	12.1	12.1	11.5	11.1	13.1	9.4	9.4	8.9	8.6	9.6
5000	43.0	42.1	40.9	40.1	37.1	27.6	26.9	25.7	24.9	23.6	18.5	18.2	17.3	16.7	15.7	14.1	14.0	13.3	12.8	11.6
6300	54.2	53.2	52.0	51.1	45.6	41.0	39.4	37.8	36.8	32.8	28.1	27.3	26.0	25.2	22.1	21.4	21.0	19.9	19.3	16.4
8000	65.1	64.3	63.1	62.3	56.3	59.4	56.4	54.5	53.4	46.2	42.7	40.7	39.0	38.0	32.1	32.7	31.5	30.0	29.2	24.2
10000	75.3	74.6	73.5	72.7	67.8	83.2	78.5	76.4	75.2	65.0	63.8	59.8	57.8	56.5	46.4	49.8	47.0	45.2	44.1	35.1

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

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ATTENUATION, IN DB, OVER 300-M PATHLENGTH FOR AN AIR TEMPERATURE OF 24 DEG C
AIR PRESSURE = 1.0 STD. ATMOSPHERE; RELATIVE HUMIDITY, IN PERCENT, NOTED ABOVE COLUMNS

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH					20 PCT RH					30 PCT RH					40 PCT RH					50 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
80	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1
100	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2
125	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3
150	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.2	.2	.2	.2	.3
175	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
200	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.6	.6	.6	.6	.5	.5	.5	.5	.5	.5
250	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7
315	.8	.8	.8	.8	.8	.7	.7	.7	.7	.7	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8
400	1.0	1.0	1.0	1.0	1.5	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	1.0	1.0	.9	.9	.8	.9	.9	.9	.9	.8
500	1.4	1.4	1.4	1.3	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.1	1.1	1.2	1.2	1.2	1.1	1.1
630	2.0	2.1	2.0	1.9	3.2	1.4	1.4	1.3	1.3	1.6	1.4	1.4	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.4	1.4
800	3.0	3.0	2.9	2.8	4.5	1.8	1.8	1.7	1.7	2.1	1.6	1.7	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.7	1.7	1.7
1000	4.5	4.5	4.3	4.1	6.2	2.4	2.4	2.3	2.3	3.0	2.1	2.1	2.0	2.0	2.2	2.1	2.1	2.0	2.0	2.2	2.1	2.1	2.1	2.1	2.2
1250	6.7	6.8	6.4	6.2	9.0	3.4	3.4	3.3	3.1	4.4	2.7	2.7	2.6	2.5	3.1	2.5	2.6	2.5	2.4	2.8	2.6	2.6	2.5	2.5	2.8
1500	10.1	10.1	9.6	9.3	12.5	4.9	4.9	4.7	4.5	6.2	3.7	3.7	3.5	3.4	4.2	3.3	3.3	3.2	3.1	3.6	3.2	3.2	3.1	3.0	3.5
1750	15.1	15.0	14.3	13.8	17.1	7.3	7.3	7.0	6.7	8.8	5.2	5.2	5.0	4.8	5.8	4.4	4.4	4.2	4.1	4.8	4.1	4.1	4.0	3.9	4.4
2000	21.8	21.8	20.8	20.2	23.9	11.0	11.0	10.4	10.1	12.7	7.5	7.5	7.2	6.9	8.2	6.1	6.2	5.9	5.7	6.4	5.5	5.5	5.3	5.1	5.8
2500	30.8	29.6	28.9	28.3	33.5	16.7	16.5	15.7	15.2	18.3	11.2	11.2	10.6	10.3	12.0	8.8	8.9	8.4	8.2	9.1	7.7	7.7	7.3	7.1	7.9
3000	43.2	42.1	40.7	39.8	45.5	25.4	24.7	23.6	22.9	21.9	17.0	16.8	15.9	15.4	14.5	13.1	13.1	12.4	12.0	10.8	11.1	11.1	10.5	10.2	9.2
3500	55.1	53.6	52.7	51.8	58.2	38.1	36.6	35.1	34.2	30.6	25.9	25.2	24.0	23.2	20.5	19.8	19.5	18.5	17.9	15.2	16.4	16.3	15.5	15.0	12.6
4000	68.9	67.5	66.5	65.5	70.5	56.2	53.3	51.4	50.3	43.8	39.4	37.7	36.1	35.1	29.8	30.2	29.2	27.9	27.0	22.2	24.8	24.2	23.1	22.4	17.9
4500	82.6	81.2	80.3	79.3	84.7	80.8	75.7	73.6	72.3	61.8	59.6	55.8	53.8	52.6	43.2	46.1	43.7	41.9	40.9	32.7	37.9	36.3	34.7	33.7	26.1
5000																									
5500																									
6000																									
6500																									
7000																									
7500																									
8000																									
8500																									
9000																									
9500																									
10000																									

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

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METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH				20 PCT RH				30 PCT RH				40 PCT RH				50 PCT RH			
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
80	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1
100	.2	.2	.2	.2	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2
125	.3	.3	.3	.3	.3	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3	.1	.1	.1	.1	.3
160	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.4	.2	.2	.2	.2	.4
200	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.4	.4	.4	.4	.5	.3	.3	.3	.3	.6
250	.5	.5	.5	.5	.5	.5	.5	.5	.5	.6	.6	.6	.6	.6	.6	.5	.5	.5	.5	.6
315	.6	.6	.6	.6	.6	.6	.6	.6	.6	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7
400	.8	.8	.8	.8	.8	.8	.8	.8	.8	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9
500	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
630	1.4	1.4	1.3	1.3	2.0	1.2	1.2	1.2	1.2	1.1	1.2	1.2	1.2	1.2	1.1	1.3	1.3	1.2	1.2	1.1
800	1.9	1.9	1.8	1.8	2.9	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.4	1.6	1.6	1.6	1.5	1.4
1000	2.8	2.8	2.7	2.6	4.1	1.8	1.8	1.7	1.7	1.8	1.8	1.8	1.7	1.8	1.8	1.9	1.9	1.9	1.9	1.8
1250	4.1	4.1	3.9	3.8	5.8	2.4	2.4	2.3	2.2	2.8	2.1	2.2	2.1	2.2	2.2	2.3	2.3	2.3	2.2	2.2
1600	6.1	6.1	5.8	5.6	8.4	3.2	3.3	3.1	3.0	4.0	2.7	2.7	2.7	2.6	3.0	2.7	2.7	2.6	2.7	2.9
2000	9.2	9.2	8.7	8.4	11.8	4.6	4.6	4.4	4.3	5.7	3.6	3.6	3.5	3.4	4.0	3.4	3.4	3.3	3.2	3.7
2500	13.9	13.8	13.1	12.6	16.3	6.8	6.8	6.5	6.2	8.1	5.0	5.0	4.8	4.6	5.5	4.4	4.4	4.3	4.1	4.7
3150	20.6	20.3	19.4	18.8	22.6	10.1	10.1	9.6	9.3	11.7	7.1	7.1	6.8	6.6	7.6	6.0	6.0	5.8	5.6	6.3
4000	30.0	29.3	28.1	27.3	31.8	15.3	15.2	14.4	13.9	17.0	10.5	10.5	9.9	9.6	11.0	8.5	8.5	8.1	7.8	8.6
5000	42.3	41.0	39.6	38.7	38.0	23.3	22.8	21.7	21.0	20.4	15.7	15.6	14.8	14.3	13.3	12.4	12.3	11.7	11.3	10.3
6300	57.3	55.4	53.8	52.8	50.0	35.2	33.9	32.5	31.5	28.5	23.9	23.3	22.2	21.5	18.9	18.5	18.2	17.4	16.8	14.2
8000	74.1	71.9	70.2	69.1	63.9	52.7	49.9	48.1	46.9	41.1	36.4	34.9	33.4	32.5	27.6	28.0	27.2	26.0	25.2	20.6
10000	91.4	89.1	87.4	86.3	80.2	77.2	72.1	70.0	68.7	58.7	55.4	52.0	50.1	48.9	40.2	42.8	40.7	39.0	38.0	30.1

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

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METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH				20 PCT RH				30 PCT RH				40 PCT RH				50 PCT RH			
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
60	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
80	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
100	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
125	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
160	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
200	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
250	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
315	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7
400	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8
500	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
630	1.3	1.4	1.3	1.3	1.8	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.2	1.3	1.3	1.3	1.2	1.2
800	1.8	1.8	1.7	2.7	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.5	1.7	1.7	1.7	1.6	1.5
1000	2.6	2.6	2.5	2.4	3.8	1.8	1.9	1.8	1.8	1.8	1.9	1.9	1.8	1.8	1.9	2.0	2.0	2.0	2.0	1.9
1250	3.8	3.8	3.6	3.5	5.4	2.4	2.4	2.3	2.2	2.2	2.3	2.3	2.2	2.2	2.3	2.4	2.4	2.3	2.3	2.3
1600	5.6	5.6	5.3	5.1	7.8	3.2	3.2	3.1	3.0	3.0	3.2	3.2	3.1	3.1	3.0	3.2	3.2	3.1	3.1	3.0
2000	8.4	8.4	8.0	7.7	11.0	4.4	4.4	4.2	4.1	4.1	4.5	4.5	4.3	4.3	4.0	4.5	4.5	4.4	4.3	4.2
2500	12.7	12.6	12.0	11.5	15.4	6.3	6.4	6.1	5.9	7.4	4.9	4.9	4.7	4.6	5.3	4.5	4.5	4.3	4.2	4.8
3150	19.0	18.7	17.8	17.3	21.6	9.4	9.4	8.9	8.6	10.8	6.8	6.9	6.6	6.3	7.3	5.9	6.0	5.7	5.6	8.5
4000	28.1	27.4	26.2	25.5	30.2	14.1	14.0	13.3	12.8	15.7	9.9	9.9	9.4	9.1	10.3	8.2	8.2	7.9	7.6	12.0
5000	40.6	39.2	37.8	36.8	35.7	21.4	21.0	20.0	19.3	18.8	14.7	14.6	13.8	13.4	12.3	11.8	11.8	11.2	10.9	17.4
6300	56.7	54.5	52.8	51.7	49.4	32.5	31.4	30.0	29.1	26.7	22.1	21.7	20.7	20.0	17.4	17.4	17.2	16.4	15.9	25.6
8000	75.9	72.9	71.0	69.9	64.4	49.1	46.5	44.7	43.6	38.4	33.7	32.5	31.0	30.1	25.6	26.2	25.5	24.4	23.6	39.9
10000	96.9	93.5	91.6	90.4	84.8	73.0	68.0	65.9	64.6	55.3	51.4	48.4	46.6	45.4	37.3	39.9	38.1	36.5	35.5	51.4

ATTENUATION, IN DB, OVER 300-M PATHLENGTH FOR AN AIR TEMPERATURE OF 29 DEG C
AIR PRESSURE = 1.0 STD. ATMOSPHERE; RELATIVE HUMIDITY, IN PERCENT, NOTED ABOVE COLUMNS

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH				20 PCT RH				30 PCT RH				40 PCT RH				50 PCT RH			
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
80	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1
100	.2	.2	.2	.2	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2
125	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2
160	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.2	.2	.2	.2	.3	.1	.1	.1	.1	.3
200	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.3	.3	.3	.3	.4	.2	.2	.2	.2	.4
250	.6	.6	.6	.6	.6	.5	.5	.5	.5	.5	.4	.4	.4	.4	.5	.3	.3	.3	.3	.5
315	.7	.7	.7	.7	.7	.6	.6	.6	.6	.6	.5	.5	.5	.5	.6	.5	.5	.5	.5	.6
400	.8	.8	.8	.8	.8	.9	.9	.9	.9	.8	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7
500	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	.9	.9	.8	.8	.8	.9	1.0	1.0	1.0	.9	.9
630	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.2
800	1.8	1.8	1.8	1.8	1.8	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.5	1.7	1.7	1.7	1.7	1.5
1000	2.5	2.5	2.5	2.5	2.5	1.9	1.9	1.9	1.9	1.8	2.0	2.0	2.0	2.0	2.4	2.5	2.5	2.5	2.5	2.4
1250	3.6	3.6	3.6	3.6	3.6	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.4	3.0	3.0	3.0	3.0	3.1
1600	5.3	5.3	5.3	5.3	5.3	3.1	3.2	3.2	3.2	3.0	3.0	3.0	3.0	3.1	3.1	3.6	3.6	3.6	3.6	3.7
2000	8.0	8.0	8.0	8.0	8.0	4.3	4.4	4.4	4.4	4.2	4.0	4.0	4.0	4.1	4.1	4.5	4.5	4.5	4.5	4.9
2500	12.1	12.0	11.4	11.0	10.9	6.2	6.2	5.9	5.7	5.7	5.2	4.9	4.7	4.6	5.3	5.9	5.7	5.6	5.4	6.2
3150	18.2	18.0	17.1	16.5	16.0	9.1	9.1	8.6	8.3	8.3	7.2	6.7	6.5	6.3	7.1	8.1	7.8	7.6	7.4	8.1
4000	27.1	26.4	25.3	24.5	23.5	13.6	13.5	12.8	12.4	12.2	10.9	9.6	9.2	8.9	10.0	11.6	11.6	11.0	10.7	9.9
5000	39.6	38.2	36.7	35.8	34.8	20.5	20.2	19.2	18.6	18.2	14.2	14.1	13.4	13.0	12.0	14.7	14.6	14.0	13.5	12.0
6300	56.0	53.6	51.9	50.8	47.8	31.2	30.2	28.8	28.0	25.7	21.4	21.0	20.0	19.3	16.8	17.0	16.8	16.0	15.5	13.2
8000	76.1	72.7	70.8	69.7	66.7	47.3	44.9	43.1	42.0	37.1	32.5	31.3	29.9	29.1	24.6	25.4	24.8	23.7	22.9	18.8
10000	98.8	94.8	92.8	91.6	86.8	70.8	65.9	63.8	62.5	53.5	49.6	46.8	45.0	43.8	36.2	38.6	36.9	35.3	34.4	27.1
	60 PCT RH				70 PCT RH				80 PCT RH				90 PCT RH				100 PCT RH			
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
80	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
100	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2
125	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.3
160	.1	.1	.1	.1	.3	.1	.1	.1	.1	.4	.1	.1	.1	.1	.4	.1	.1	.1	.1	.4
200	.2	.2	.2	.2	.4	.2	.2	.2	.2	.5	.2	.2	.2	.2	.5	.2	.2	.2	.2	.5
250	.3	.3	.3	.3	.5	.4	.4	.4	.4	.6	.3	.3	.3	.3	.6	.3	.3	.3	.3	.6
315	.4	.4	.4	.4	.6	.5	.5	.5	.5	.7	.5	.5	.5	.5	.7	.5	.5	.5	.5	.7
400	.6	.6	.6	.6	.7	.6	.6	.6	.6	.8	.6	.6	.6	.6	.8	.6	.6	.6	.6	.8
500	.9	.9	.9	.9	.9	.8	.8	.8	.8	.9	.8	.8	.8	.8	.9	.8	.8	.8	.8	.9
630	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.2	1.0	1.0	.9	.9	1.2
800	1.7	1.7	1.7	1.6	1.5	1.6	1.6	1.6	1.5	1.5	1.6	1.6	1.5	1.5	1.5	1.4	1.4	1.4	1.3	1.5
1000	2.2	2.2	2.1	2.1	1.9	2.2	2.2	2.1	2.1	1.9	2.1	2.1	2.1	2.1	1.9	2.0	2.0	1.9	1.9	1.9
1250	2.7	2.7	2.7	2.6	2.4	2.8	2.8	2.7	2.6	2.4	2.8	2.8	2.7	2.6	2.4	2.7	2.7	2.6	2.5	2.4
1600	3.3	3.3	3.2	3.2	3.1	3.4	3.4	3.3	3.3	3.1	3.5	3.5	3.4	3.3	3.1	3.5	3.5	3.4	3.3	3.1
2000	3.9	3.9	3.8	3.8	3.9	4.1	4.1	4.0	3.9	3.9	4.2	4.2	4.1	4.0	3.9	4.4	4.4	4.3	4.2	3.9
2500	4.7	4.7	4.6	4.5	4.9	4.8	4.9	4.7	4.7	4.9	5.0	5.0	4.9	4.8	4.9	5.3	5.3	5.2	5.1	4.9
3150	5.7	5.7	5.6	5.5	6.2	5.8	5.9	5.7	5.6	6.2	6.0	6.0	5.9	5.8	6.2	6.2	6.2	6.1	6.0	6.2
4000	7.3	7.3	7.1	6.9	8.1	7.3	7.3	7.1	6.9	8.1	7.3	7.4	7.2	7.0	8.1	7.5	7.5	7.3	7.2	8.1
5000	9.7	9.7	9.3	9.1	9.2	9.4	9.4	9.1	8.9	9.2	9.3	9.3	9.3	9.1	8.9	9.4	9.4	9.2	9.0	9.2
6300	13.4	13.4	12.8	12.4	11.7	12.7	12.7	12.1	11.8	11.7	12.3	12.3	11.8	11.5	11.7	12.1	12.1	11.6	11.4	11.7
8000	19.2	19.0	18.2	17.6	15.4	17.8	17.6	16.9	16.4	15.3	16.9	16.8	16.1	15.6	15.3	16.3	16.2	15.6	15.2	15.3
10000	28.4	27.7	26.4	25.7	21.0	25.9	25.3	24.2	23.5	20.1	24.1	23.7	22.7	22.0	20.2	22.9	22.6	21.6	21.0	20.2

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

[illegible]

ATTENUATION, IN DB, OVER 300-M PATHLENGTH FOR AN AIR TEMPERATURE OF 31 DEG C
AIR PRESSURE = 1.0 STD. ATMOSPHERE; RELATIVE HUMIDITY, IN PERCENT, NOTED ABOVE COLUMNS

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH					20 PCT RH					30 PCT RH					40 PCT RH					50 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
N 50	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
D 63	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
C 80	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2
E 100	.2	.2	.2	.2	.2	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.3
M 125	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4
T 160	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.4	.4	.4	.4	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5
H 200	.5	.5	.5	.5	.5	.5	.5	.5	.5	.6	.5	.5	.5	.5	.6	.5	.5	.5	.5	.5	.5	.5	.5	.5	.6
I 250	.6	.6	.6	.6	.6	.6	.6	.6	.6	.7	.6	.6	.6	.6	.7	.6	.6	.6	.6	.6	.6	.6	.6	.6	.7
A 315	.7	.7	.7	.7	.7	.7	.7	.7	.7	.8	.7	.7	.7	.7	.8	.7	.7	.7	.7	.7	.7	.7	.7	.7	.8
L 400	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9
O 500	1.1	1.1	1.0	1.0	1.2	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.1	1.1	1.0	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
U 630	1.3	1.4	1.3	1.3	1.6	1.4	1.4	1.3	1.3	1.3	1.5	1.5	1.4	1.4	1.2	1.4	1.5	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.2
N 800	1.8	1.8	1.7	1.7	2.4	1.6	1.6	1.6	1.6	1.6	1.8	1.8	1.7	1.7	1.6	1.8	1.8	1.8	1.8	1.7	1.7	1.8	1.7	1.7	1.6
M 1000	2.4	2.4	2.3	2.2	3.4	2.0	2.0	1.9	1.9	2.0	2.1	2.1	2.1	2.0	2.0	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.0
E 1250	3.4	3.4	3.3	3.2	4.8	2.4	2.5	2.4	2.3	2.6	2.5	2.5	2.5	2.4	2.5	2.7	2.7	2.6	2.6	2.8	2.8	2.8	2.8	2.7	2.5
C 1400	4.9	5.0	4.7	4.6	7.0	3.1	3.2	3.1	3.0	3.5	3.0	3.1	3.0	2.9	3.2	3.2	3.2	3.1	3.1	3.4	3.4	3.3	3.3	3.2	3.0
T 2000	7.3	7.4	7.0	6.7	9.9	4.2	4.3	4.1	4.0	4.8	3.8	3.8	3.7	3.6	4.0	3.8	3.9	3.8	3.7	4.0	4.1	4.0	3.9	3.8	3.6
H 2500	11.1	11.0	10.5	10.1	13.9	5.9	5.9	5.7	5.5	6.7	4.9	4.9	4.7	4.6	5.2	4.7	4.8	4.6	4.5	5.1	4.8	4.9	4.7	4.7	4.5
I 3150	16.7	16.5	15.7	15.2	19.7	8.5	8.5	8.1	7.9	9.5	6.6	6.6	6.4	6.2	7.0	6.1	6.1	5.9	5.7	6.5	6.0	6.0	5.8	5.7	5.5
A 4000	25.1	24.5	23.4	22.7	28.1	12.6	12.6	11.9	11.5	14.0	9.3	9.3	8.9	8.6	9.6	8.1	8.1	7.8	7.6	8.4	7.7	7.7	7.4	7.3	6.4
U 5000	37.2	35.8	34.4	33.5	43.3	19.0	18.7	17.8	17.2	16.9	13.5	13.4	12.8	12.4	11.4	11.3	11.3	10.8	10.4	9.8	10.3	10.3	9.9	9.6	9.5
N 6300	53.8	51.3	49.5	48.5	45.3	28.9	28.0	26.7	25.9	23.8	20.0	19.7	18.8	18.2	15.7	16.2	16.1	15.4	14.9	13.0	14.3	14.3	13.6	13.2	12.1
C 8000	75.3	71.4	69.4	68.2	64.0	43.9	41.7	40.0	39.0	34.6	30.3	29.3	28.0	27.2	22.8	24.0	23.5	22.4	21.8	18.0	20.7	20.4	19.5	18.9	16.2
E 10000	101.0	95.9	93.7	92.4	88.9	66.2	61.7	59.6	58.4	50.0	46.2	43.7	42.0	40.9	33.5	36.2	34.8	33.3	32.4	25.6	30.7	29.8	28.5	27.6	22.5
	60 PCT RH					70 PCT RH					80 PCT RH					90 PCT RH					100 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
N 50	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
D 63	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
C 80	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
E 100	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
M 125	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
T 160	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
H 200	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
I 250	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
A 315	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
U 400	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6
N 500	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9
C 630	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E 800	1.8	1.8	1.7	1.7	1.6	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.4	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.6
M 1000	2.3	2.3	2.2	2.2	2.0	2.3	2.3	2.2	2.1	2.0	2.2	2.2	2.1	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0
C 1250	2.9	2.9	2.8	2.8	2.5	2.9	2.9	2.8	2.8	2.5	2.9	2.9	2.8	2.7	2.5	2.8	2.9	2.8	2.7	2.5	2.8	2.8	2.7	2.6	2.5
T 1600	3.5	3.6	3.5	3.4	3.2	3.6	3.7	3.6	3.5	3.2	3.7	3.7	3.6	3.5	3.2	3.7	3.7	3.6	3.5	3.2	3.7	3.7	3.6	3.5	3.2
H 2000	4.2	4.3	4.2	4.1	4.0	4.4	4.4	4.3	4.2	4.0	4.5	4.6	4.4	4.4	4.0	4.6	4.6	4.5	4.4	4.0	4.7	4.7	4.6	4.5	4.0
I 2500	5.0	5.1	4.9	4.9	5.1	5.3	5.3	5.2	5.1	5.3	5.5	5.5	5.3	5.3	5.1	5.6	5.6	5.5	5.4	5.1	5.8	5.8	5.6	5.5	5.1
A 3150	6.1	6.1	6.0	5.9	6.5	6.3	6.3	6.2	6.1	6.5	6.5	6.5	6.4	6.3	6.1	6.7	6.7	6.6	6.5	6.5	6.9	7.0	6.8	6.7	6.5
U 4000	7.6	7.6	7.4	7.2	8.4	7.7	7.7	7.5	7.4	8.4	7.9	7.9	7.7	7.5	8.4	8.1	8.1	7.9	7.8	8.4	8.3	8.3	8.1	8.0	8.4
N 5000	9.8	9.9	9.5	9.3	9.5	9.7	9.7	9.4	9.2	9.5	9.7	9.8	9.5	9.3	9.5	9.9	9.9	9.6	9.5	9.5	10.1	10.1	9.8	9.7	9.5
C 6300	13.3	13.3	12.8	12.4	12.1	12.8	12.8	12.3	12.0	12.1	12.6	12.6	12.1	11.9	12.1	12.5	12.5	12.1	11.9	12.1	12.6	12.6	12.2	12.0	12.1
E 8000	18.8	18.6	17.8	17.3	15.8	17.6	17.5	16.8	16.3	15.8	16.9	16.8	16.2	15.8	15.8	16.5	16.5	15.9	15.5	15.8	16.3	16.3	15.7	15.4	15.8
M 10000	27.3	26.7	25.5	24.8	21.0	25.1	24.7	23.6	23.0	20.9	23.7	23.4	22.4	21.8	20.9	22.8	22.5	21.6	21.0	20.9	22.1	21.9	21.1	20.5	20.9

ATTENUATION, IN DB, OVER 300-M PATHLENGTH FOR AN AIR TEMPERATURE OF 32 DEG C
AIR PRESSURE = 1.0 STD. ATMOSPHERE/ RELATIVE HUMIDITY, IN PERCENT, NOTED ABOVE COLUMNS

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH					20 PCT RH					30 PCT RH					40 PCT RH					50 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
80	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
100	.2	.2	.2	.2	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2
125	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2
160	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3	.1	.1	.1	.1	.3
200	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.3	.3	.3	.3	.4	.4	.4	.4	.4	.5	.3	.3	.3	.3	.5
250	.6	.6	.6	.6	.6	.5	.5	.5	.5	.5	.4	.4	.4	.4	.5	.5	.5	.5	.5	.6	.5	.5	.5	.5	.6
315	.7	.7	.7	.7	.7	.6	.6	.6	.6	.6	.5	.5	.5	.5	.6	.6	.6	.6	.6	.7	.6	.6	.6	.6	.7
400	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.8	.8	.8	.8	.9	.8	.8	.8	.8	.9	.7	.7	.7	.7	.8
500	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	
630	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	
800	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.6	1.6	1.6	1.6	1.6	
1000	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.0	2.0	2.0	2.0	2.0	
1250	3.3	3.3	3.3	3.3	3.3	3.2	3.2	3.2	3.2	3.2	3.3	3.3	3.3	3.3	3.3	3.4	3.4	3.4	3.4	2.5	2.5	2.5	2.5	2.5	
1600	4.8	4.8	4.8	4.8	4.8	4.7	4.7	4.7	4.7	4.7	4.8	4.8	4.8	4.8	4.8	4.9	4.9	4.9	4.9	3.2	3.2	3.2	3.2	3.2	
2000	7.1	7.1	7.1	7.1	7.1	7.0	7.0	7.0	7.0	7.0	7.1	7.1	7.1	7.1	7.1	7.2	7.2	7.2	7.2	4.1	4.1	4.1	4.1	4.1	
2500	10.6	10.6	10.6	10.6	10.6	10.5	10.5	10.5	10.5	10.5	10.6	10.6	10.6	10.6	10.6	10.7	10.7	10.7	10.7	5.2	5.0	5.0	4.9	4.8	
3150	16.0	15.8	15.0	14.5	19.1	8.3	8.3	7.9	7.7	9.2	6.6	6.6	6.4	6.2	6.9	6.1	6.2	6.0	5.8	6.6	6.1	6.2	6.0	5.9	6.6
4000	24.1	23.6	22.5	21.8	27.3	12.2	12.2	11.6	11.2	13.4	9.1	9.2	8.8	8.5	9.4	8.1	8.1	7.8	7.6	8.5	7.8	7.8	7.6	7.4	8.5
5000	35.9	34.6	33.2	32.3	32.5	18.3	18.1	17.2	16.6	16.2	13.2	13.1	12.5	12.1	11.1	11.2	11.2	10.7	10.4	9.8	10.3	10.3	9.9	9.7	9.7
6300	52.4	50.0	48.2	47.1	44.3	27.8	27.0	25.7	25.0	23.0	19.5	19.2	18.3	17.7	15.3	15.9	15.8	15.1	14.6	12.9	14.2	14.2	13.6	13.2	12.3
8000	74.3	70.2	68.2	67.0	62.3	42.3	40.3	38.6	37.6	33.3	29.3	28.4	27.1	26.3	22.0	23.4	23.0	21.9	21.3	17.7	20.3	20.3	19.2	18.6	16.3
10000	101.2	95.6	93.4	92.1	88.3	64.0	59.7	57.6	56.4	48.5	44.6	42.3	40.6	39.6	32.1	35.2	33.9	32.4	31.5	25.1	30.0	29.2	27.9	27.1	22.3

	60 PCT RH					70 PCT RH					80 PCT RH					90 PCT RH					100 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
63	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
80	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
100	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
125	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
160	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
200	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
250	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
315	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
400	.6	.6	.6	.6	.6	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
500	.9	.9	.9	.9	.9	.8	.8	.8	.8	.8	.7	.7	.7	.7	.7	.7	.7	.7	.7	.7	.6	.6	.6	.6	.6
630	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	.9	.9	.9	.8	1.3
800	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.3	1.3	1.6
1000	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.8	2.0
1250	3.0	3.0	2.9	2.9	2.9	2.9	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.7	2.7	2.7	2.6	2.6	2.6	2.6	2.5	2.5	2.5
1600	3.7	3.7	3.6	3.6	3.6	3.6	3.6	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.4	3.4	3.4	3.3	3.3	3.3	3.3	3.2	3.2	3.2
2000	4.4	4.4	4.3	4.3	4.3	4.3	4.3	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.1	4.1	4.1	4.0	4.0	4.0	4.0	3.9	3.9	4.1
2500	5.3	5.3	5.2	5.2	5.2	5.2	5.2	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.0	5.0	5.0	4.9	4.9	4.9	4.9	4.8	4.8	5.2
3150	6.3	6.3	6.2	6.2	6.2	6.2	6.2	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.0	6.0	6.0	5.9	5.9	5.9	5.9	5.8	5.8	6.5
4000	7.8	7.8	7.6	7.6	7.6	7.6	7.6	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.2	7.2	8.3
5000	10.0	10.0	9.7	9.7	9.7	9.7	9.7	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.5	9.5	9.5	9.4	9.4	9.4	9.4	9.3	9.3	9.7
6300	13.3	13.3	12.8	12.5	12.3	12.9	12.9	12.5	12.2	12.3	12.8	12.8	12.4	12.1	12.3	12.8	12.8	12.4	12.2	12.3	12.9	13.0	12.6	12.3	12.3
8000	18.6	18.4	17.8	17.2	16.1	17.6	17.5	16.8	16.3	16.1	17.0	17.0	16.3	15.9	16.1	16.7	16.7	16.1	15.7	16.1	16.6	16.6	16.0	15.7	16.1
10000	26.9	26.3	25.2	24.4	21.1	24.9	24.5	23.4	22.8	21.2	23.6	23.3	22.4	21.8	21.2	22.8	22.6	21.7	21.1	21.2	22.3	22.1	21.3	20.7	21.2

N O M H I R D B A N C E N T E R F R E Q U E N C Y , M H Z

ATTENUATION, IN DB, OVER 300-M PATHLENGTH FOR AN AIR TEMPERATURE OF 33 DEG C
AIR PRESSURE = 1.0 STD. ATMOSPHERE; RELATIVE HUMIDITY, IN PERCENT, NOTED ABOVE COLUMNS

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH					20 PCT RH					30 PCT RH					40 PCT RH					50 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
60	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
70	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
80	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
90	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
100	.2	.2	.2	.2	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2
125	.3	.3	.3	.3	.3	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3
150	.4	.4	.4	.4	.4	.3	.3	.3	.3	.4	.3	.3	.3	.3	.4	.3	.3	.3	.3	.4	.3	.3	.3	.3	.4
175	.5	.5	.5	.5	.5	.4	.4	.4	.4	.5	.4	.4	.4	.4	.5	.4	.4	.4	.4	.5	.4	.4	.4	.4	.5
200	.6	.6	.6	.6	.6	.5	.5	.5	.5	.6	.5	.5	.5	.5	.6	.5	.5	.5	.5	.6	.5	.5	.5	.5	.6
250	.8	.8	.8	.8	.8	.7	.7	.7	.7	.8	.7	.7	.7	.7	.8	.7	.7	.7	.7	.8	.7	.7	.7	.7	.8
300	.9	.9	.9	.9	.9	1.0	1.0	.9	.9	.9	1.0	1.0	.9	.9	.9	1.0	1.0	.9	.9	1.0	1.0	.9	.9	.9	1.0
400	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.1	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	.9	.9	.9	1.0
500	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.3	1.5	1.5	1.4	1.4	1.3	1.4	1.4	1.3	1.3	1.5
600	1.8	1.8	1.7	1.7	2.2	1.8	1.8	1.7	1.7	1.6	1.9	1.9	1.9	1.8	1.6	1.9	1.9	1.9	1.8	1.6	1.9	1.9	1.8	1.8	1.6
800	2.3	2.4	2.3	2.2	3.1	2.1	2.1	2.1	2.0	2.0	2.3	2.3	2.3	2.2	2.0	2.4	2.4	2.4	2.3	2.0	2.4	2.5	2.4	2.3	2.0
1000	3.2	3.3	3.1	3.0	4.4	2.6	2.6	2.5	2.5	2.6	2.7	2.7	2.7	2.6	2.6	2.9	2.9	2.9	2.8	2.6	3.1	3.0	2.9	2.9	2.6
1250	4.6	4.7	4.4	4.3	6.5	3.2	3.2	3.1	3.1	3.5	3.3	3.3	3.3	3.2	3.1	3.3	3.5	3.5	3.4	3.3	3.7	3.7	3.6	3.6	3.3
1500	6.8	6.8	6.5	6.2	9.2	4.2	4.2	4.1	4.0	4.6	4.0	4.0	3.9	3.8	4.2	4.1	4.2	4.1	4.0	4.2	4.4	4.4	4.3	4.2	4.2
2000	10.1	10.1	9.6	9.3	13.0	5.7	5.8	5.5	5.4	6.4	5.0	5.0	4.9	4.8	5.2	5.0	5.0	4.9	4.8	5.3	5.2	5.2	5.1	5.0	5.3
2500	15.3	15.2	14.4	13.9	18.4	8.1	8.1	7.8	7.5	8.9	6.6	6.6	6.4	6.2	6.9	6.3	6.3	6.1	6.0	6.7	6.3	6.4	6.2	6.1	6.7
3000	23.1	22.6	21.6	20.9	26.5	11.8	11.8	11.2	10.9	12.9	9.0	9.1	8.7	8.4	9.4	8.2	8.2	7.9	7.7	8.0	7.7	7.9	8.0	7.7	8.7
4000	34.6	33.4	32.0	31.1	31.5	17.7	17.5	16.6	16.1	15.5	12.9	12.9	12.3	11.9	10.9	11.1	11.1	10.6	10.3	9.8	10.4	10.4	10.0	9.8	9.9
5000	51.0	48.5	46.8	45.7	43.4	26.8	26.0	24.8	24.1	22.1	18.9	18.7	17.8	17.3	15.0	15.7	15.6	14.9	14.5	12.9	14.2	14.1	13.5	13.2	12.5
6000	73.1	68.9	66.8	65.6	60.7	40.7	38.9	37.2	36.2	32.1	28.4	27.6	26.4	25.6	21.4	22.9	22.5	21.5	20.8	17.7	20.1	19.8	19.0	18.4	16.4
8000	101.0	94.9	92.7	91.3	86.1	61.8	57.7	55.7	54.4	46.9	43.1	41.0	39.4	38.3	31.0	34.3	33.0	31.6	30.7	24.6	29.4	28.6	27.4	26.6	22.2
10000																									

	60 PCT RH					70 PCT RH					80 PCT RH					90 PCT RH					100 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
60	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
70	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2
80	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2
100	.1	.1	.1	.1	.3	.1	.1	.1	.1	.3	.0	.0	.0	.0	.3	.0	.0	.0	.0	.3	.0	.0	.0	.0	.3
125	.1	.1	.1	.1	.3	.1	.1	.1	.1	.3	.1	.1	.1	.1	.3	.1	.1	.1	.1	.3	.1	.1	.1	.1	.3
150	.1	.1	.1	.1	.3	.1	.1	.1	.1	.3	.1	.1	.1	.1	.3	.1	.1	.1	.1	.3	.1	.1	.1	.1	.3
175	.2	.2	.2	.2	.5	.2	.2	.2	.2	.5	.2	.2	.2	.2	.5	.2	.2	.2	.2	.5	.2	.2	.2	.2	.5
200	.2	.2	.2	.2	.5	.2	.2	.2	.2	.5	.2	.2	.2	.2	.5	.2	.2	.2	.2	.5	.2	.2	.2	.2	.5
250	.3	.3	.3	.3	.6	.3	.3	.3	.3	.6	.3	.3	.3	.3	.6	.3	.3	.3	.3	.6	.3	.3	.3	.3	.6
300	.4	.4	.4	.4	.8	.4	.4	.4	.4	.8	.4	.4	.4	.4	.8	.4	.4	.4	.4	.8	.4	.4	.4	.4	.8
350	.6	.6	.6	.6	.8	.5	.5	.5	.5	.8	.5	.5	.5	.5	.8	.5	.5	.5	.5	.8	.5	.5	.5	.5	.8
400	.6	.6	.6	.6	.8	.5	.5	.5	.5	.8	.5	.5	.5	.5	.8	.5	.5	.5	.5	.8	.5	.5	.5	.5	.8
450	.9	.9	.9	.9	.8	.8	.8	.8	.7	.8	.7	.7	.7	.7	.8	.6	.6	.6	.6	.8	.6	.6	.6	.6	.8
500	1.3	1.3	1.2	1.2	1.3	1.2	1.2	1.1	1.1	1.3	1.1	1.1	1.1	1.1	1.3	1.0	1.0	1.0	1.0	1.3	.9	.9	.9	.9	1.0
600	1.8	1.8	1.7	1.7	1.6	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.5	1.4	1.6	1.4	1.4	1.4	1.3	1.6	1.3	1.4	1.3	1.2	1.6
800	2.4	2.4	2.3	2.3	2.0	2.3	2.3	2.2	2.2	2.0	2.2	2.2	2.1	2.1	2.0	2.1	2.1	2.0	1.9	2.0	2.0	2.0	1.9	1.8	2.0
1000	3.1	3.1	3.0	2.9	2.6	3.1	3.1	3.0	2.9	2.6	3.0	3.0	2.9	2.8	2.6	2.9	2.9	2.8	2.7	2.6	2.8	2.8	2.7	2.6	2.6
1250	3.8	3.8	3.7	3.7	3.3	3.9	3.9	3.8	3.7	3.3	3.9	3.9	3.8	3.7	3.3	3.9	3.9	3.7	3.7	3.3	3.8	3.8	3.7	3.6	3.3
1500	4.6	4.6	4.5	4.4	4.2	4.8	4.8	4.7	4.6	4.2	4.9	4.9	4.8	4.7	4.2	4.9	5.0	4.8	4.7	4.2	5.0	5.0	4.8	4.7	4.2
2000	5.5	5.5	5.4	5.3	5.3	5.7	5.7	5.6	5.5	5.3	5.9	5.9	5.8	5.7	5.3	6.1	6.1	5.9	5.8	5.3	6.2	6.2	6.0	5.9	5.3
2500	6.6	6.6	6.4	6.3	6.7	6.8	6.8	6.7	6.6	6.7	7.1	7.1	6.9	6.8	6.7	7.3	7.3	7.2	7.1	6.7	7.5	7.5	7.4	7.2	6.7
3000	8.0	8.0	7.8	7.7	7.8	8.2	8.2	8.0	7.9	7.9	8.5	8.5	8.3	8.2	8.7	8.8	8.8	8.6	8.4	8.7	9.0	9.0	8.8	8.7	8.7
4000	10.2	10.2	9.9	9.6	9.9	10.2	10.2	10.2	10.2	9.9	10.3	10.4	10.1	9.9	9.9	10.6	10.6	10.3	10.2	9.9	10.9	10.9	10.6	10.4	9.9
5000	13.4	13.4	12.9	12.6	12.5	13.1	13.1	12.7	12.4	12.4	13.1	13.1	12.7	12.4	12.5	13.2	13.2	12.8	12.5	12.5	13.3	13.4	13.0	12.7	12.5
6000	18.5	18.4	17.6	17.1	16.4	17.6	17.6	16.9	16.4	16.4	17.2	17.1	16.5	16.1	16.4	17.0	17.0	16.4	16.0	16.4	17.0	16.9	16.4	16.0	16.4
8000	26.5	26.0	24.9	24.2	21.6																				

ATTENUATION, IN DB, OVER 300-M PATHLENGTH FOR AN AIR TEMPERATURE OF 34 DEG C
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METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH				20 PCT RH				30 PCT RH				40 PCT RH				50 PCT RH			
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
N 50	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
O 60	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
E 80	.1	.1	.1	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
M 100	.2	.2	.2	.2	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2	.0	.0	.0	.0	.2
N 125	.3	.3	.3	.3	.3	.2	.2	.2	.2	.3	.1	.1	.1	.1	.3	.1	.1	.1	.1	.3
O 160	.4	.4	.4	.4	.4	.3	.3	.3	.3	.4	.2	.2	.2	.2	.4	.2	.2	.2	.2	.4
M 200	.5	.5	.5	.5	.5	.4	.4	.4	.4	.5	.3	.3	.3	.3	.5	.3	.3	.3	.3	.5
I 250	.6	.6	.6	.6	.6	.5	.5	.5	.5	.6	.4	.4	.4	.4	.6	.4	.4	.4	.4	.6
N 315	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.7	.7	.7	.7	.8	.7	.7	.7	.7	.8
A 400	1.0	1.0	.9	.9	.8	1.0	1.0	1.0	.9	.8	.9	.9	.9	.8	.8	.8	.7	.7	.6	.8
L 500	1.2	1.2	1.1	1.1	1.1	1.3	1.3	1.2	1.2	1.0	1.2	1.2	1.2	1.1	1.0	1.1	1.0	.9	.9	1.0
O 630	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.3	1.6	1.6	1.5	1.5	1.3	1.5	1.5	1.4	1.3	1.3
D 800	1.8	1.8	1.7	1.7	2.1	1.8	1.8	1.8	1.8	1.7	2.0	2.0	1.9	1.9	1.7	2.0	2.0	1.9	1.7	1.7
N 1000	2.3	2.3	2.3	2.3	3.0	2.2	2.2	2.1	2.1	2.1	2.4	2.4	2.3	2.3	2.1	2.5	2.5	2.4	2.4	2.1
E 1250	3.2	3.2	3.1	3.0	4.2	2.6	2.6	2.6	2.5	2.6	2.8	2.9	2.8	2.7	2.6	3.0	3.1	3.0	2.9	2.6
M 1600	4.5	4.5	4.3	4.2	6.3	3.3	3.3	3.2	3.1	3.5	3.4	3.4	3.3	3.3	3.4	3.6	3.6	3.6	3.5	3.4
T 2000	6.5	6.6	6.3	6.0	8.8	4.2	4.2	4.1	4.0	4.6	4.1	4.1	4.0	3.9	4.2	4.3	4.3	4.2	4.2	4.2
H 2500	9.7	9.7	9.3	8.9	12.5	5.7	5.7	5.5	5.3	6.2	5.1	5.1	5.0	4.9	5.4	5.2	5.2	5.1	5.0	5.4
I 3150	14.7	14.6	13.8	13.4	17.8	8.0	8.0	7.6	7.4	8.7	6.6	6.7	6.4	6.2	6.9	6.4	6.4	6.2	6.1	6.8
R 4000	22.2	21.7	20.7	20.0	25.6	11.5	11.5	11.0	10.6	12.4	9.0	9.0	8.6	8.4	9.3	8.2	8.3	8.0	7.8	8.8
D 5000	33.4	32.2	30.8	30.0	36.6	17.1	16.9	16.1	15.6	18.0	12.7	12.7	12.1	11.7	10.9	11.1	11.1	10.6	10.4	10.0
E 6300	47.1	45.3	44.2	42.3	48.3	25.8	25.2	24.0	23.3	21.3	18.5	18.3	17.4	16.9	14.6	15.5	15.4	14.8	14.1	14.1
B 8000	71.6	67.3	65.3	64.1	59.3	39.3	37.5	35.9	35.0	31.1	27.6	26.9	25.6	24.9	20.8	22.5	22.1	21.1	20.5	17.6
A 10000	90.2	83.6	81.5	80.2	83.6	59.7	55.8	53.8	52.6	45.1	41.8	39.8	38.2	37.2	30.1	33.4	32.3	30.9	30.0	24.2
N 50	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
O 60	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
E 80	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
M 100	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2
N 125	.1	.1	.1	.1	.3	.1	.1	.1	.1	.3	.0	.0	.0	.0	.3	.0	.0	.0	.0	.3
O 160	.1	.1	.1	.1	.4	.1	.1	.1	.1	.4	.1	.1	.1	.1	.4	.1	.1	.1	.1	.4
M 200	.2	.2	.2	.2	.5	.2	.2	.2	.2	.5	.2	.2	.2	.2	.5	.2	.2	.2	.2	.5
I 250	.4	.4	.4	.4	.8	.3	.3	.3	.3	.8	.3	.3	.3	.3	.8	.3	.3	.3	.3	.8
N 315	.6	.6	.6	.6	.8	.5	.5	.5	.5	.8	.5	.5	.5	.5	.8	.4	.4	.4	.4	.8
A 400	.9	.9	.8	.8	.8	.8	.8	.8	.7	.7	.7	.7	.7	.7	.8	.7	.7	.6	.6	.8
L 500	1.3	1.3	1.2	1.2	1.3	1.1	1.2	1.1	1.1	1.0	1.2	1.2	1.2	1.1	1.0	1.1	1.0	.9	.9	1.0
O 630	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.6	1.5	1.7	1.5	1.6	1.5	1.5	1.3	1.5	1.5	1.4	1.3	1.3
D 800	2.4	2.4	2.4	2.3	2.1	2.3	2.3	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.0	1.9	1.8
N 1000	3.2	3.2	3.1	3.0	2.6	3.1	3.1	3.0	2.9	2.6	3.0	3.0	2.9	2.8	2.6	2.9	2.9	2.8	2.7	2.6
E 1250	4.0	4.0	3.9	3.8	3.4	4.0	4.0	3.9	3.8	3.4	4.0	4.0	3.9	3.8	3.4	3.9	3.9	3.8	3.7	3.4
M 1600	4.8	4.8	4.7	4.6	4.2	5.0	5.0	4.9	4.8	4.2	5.1	5.1	4.9	4.8	4.2	5.1	5.1	4.9	4.8	4.2
T 2000	5.7	5.7	5.6	5.5	5.4	6.0	6.0	5.9	5.8	5.4	6.2	6.2	6.0	5.9	5.4	6.3	6.3	6.2	6.0	5.4
H 2500	6.8	6.8	6.7	6.6	6.8	7.1	7.1	7.0	6.9	6.8	7.4	7.4	7.2	7.1	6.8	7.6	7.7	7.5	7.3	6.8
I 3150	8.3	8.3	8.1	7.9	8.8	8.5	8.6	8.3	8.2	8.8	8.8	8.8	8.6	8.5	8.8	9.1	9.2	8.9	8.8	8.8
R 4000	10.4	10.4	10.1	9.9	10.0	10.5	10.5	10.2	10.0	10.0	10.7	10.7	10.4	10.3	10.0	11.0	11.0	10.7	10.6	10.0
D 5000	13.5	13.5	13.1	12.7	12.8	13.3	13.4	12.9	12.6	12.8	13.4	13.4	13.0	12.7	12.8	13.5	13.6	13.2	12.9	12.8
E 6300	15.5	15.5	15.1	14.7	14.7	15.8	15.8	15.4	15.0	15.0	16.7	16.7	16.3	16.0	15.0	17.3	17.3	16.7	16.3	15.0
B 8000	18.5	18.4	17.6	17.1	16.7	17.8	17.8	17.4	17.0	16.6	17.4	17.4	16.8	16.4	16.7	17.5	17.5	16.7	16.3	16.7
A 10000	26.2	25.7	24.7	24.0	21.9	24.6	24.6	24.3	23.3	22.7	23.6	23.6	23.4	22.5	21.9	23.1	22.9	22.0	21.5	21.9
N 50	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
O 60	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
E 80	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
M 100	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2
N 125	.1	.1	.1	.1	.3	.1	.1	.1	.1	.3	.0	.0	.0	.0	.3	.0	.0	.0	.0	.3
O 160	.1	.1	.1	.1	.4	.1	.1	.1	.1	.4	.1	.1	.1	.1	.4	.1	.1	.1	.1	.4
M 200	.2	.2	.2	.2	.5	.2	.2	.2	.2	.5	.2	.2	.2	.2	.5	.2	.2	.2	.2	.5
I 250	.4	.4	.4	.4	.8	.3	.3	.3	.3	.8	.3	.3	.3	.3	.8	.3	.3	.3	.3	.8
N 315	.6	.6	.6	.6	.8	.5	.5	.5	.5	.8	.5	.5	.5	.5	.8	.4	.4	.4	.4	.8
A 400	.9	.9	.8	.8	.8	.8	.8	.8	.7	.7	.7	.7	.7	.7	.8	.7	.7	.6	.6	.8
L 500	1.3	1.3	1.2	1.2	1.3	1.1	1.2	1.1	1.1	1.0	1.2	1.2	1.2	1.1	1.0	1.1	1.0	.9	.9	1.0
O 630	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.6	1.5	1.7	1.5	1.6	1.5	1.5	1.3	1.5	1.5	1.4	1.3	1.3
D 800	2.4	2.4	2.4	2.3	2.1	2.3	2.3	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.0	1.9	1.8
N 1000	3.2	3.2	3.1	3.0	2.6	3.1	3.1	3.0	2.9	2.6	3.0	3.0	2.9	2.8	2.6	2.9	2.9	2.8	2.7	2.6
E 1250	4.0	4.0	3.9	3.8	3.4	4.0	4.0	3.9	3.8	3.4	4.0	4.0	3.9	3.8	3.4	3.9	3.9	3.8	3.7	3.4
M 1600	4.8	4.8	4.7	4.6	4.2	5.0	5.0	4.9	4.8	4.2	5.1	5.1	4.9	4.8	4.2	5.1	5.1	4.9	4.8	4.2
T 2000	5.7	5.7	5.6	5.5	5.4	6.0	6.0	5.9	5.8	5.4	6.2	6.2	6.0	5.9	5.4	6.3	6.3	6.2	6.0	5.4
H 2500	6.8	6.8	6.7	6.6	6.8	7.1	7.1	7.0	6.9	6.8	7.4	7.4	7.2	7.1	6.8	7.6	7.7	7.5	7.3	6.8
I 3150	8.3	8.3	8.1	7.9	8.8	8.5	8.6	8.3	8.2	8.8	8.8	8.8	8.6	8.5	8.8	9.1	9.2	8.9	8.8	8.8
R 4000	10.4	10.4	10.1	9.9	10.0	10.5	10.5	10.2	10.0	10.0	10.7	10.7	10.4	10.3	10.0	11.0	11.0	10.7	10.6	10.0
D 5000	13.5	13.5	13.1	12.7	12.8	13.3	13.4	12.9	12.6	12.8	13.4	13.4	13.0	12.7	12.8	13.5	13.6	13.2	12.9	12.8
E 6300	15.5	15.5	15.1	14.7	14.7	15.8	15.8	15.4	15.0	15.0	16.7	16.7	16.3	16.0	15.0	17.3	17.3	16.7	16.3	15.0
B 8000	18.5	18.4	17.6	17.1	16.7	17.8	17.8	17.4	17.0	16.6	17.4	17.4	16.8	16.4	16.7	17.5	17.5	16.7	16.3	16.7
A 10000	26.2	25.7	24.7	24.0	21.9	24.6	24.6	24.3	23.3	22.7	23.6	23.6	23.4	22.5	21.9	23.1	22.9	22.0	21.5	21.9

ATTENUATION, IN DB, OVER 300-M PATHLENGTH FOR AN AIR TEMPERATURE OF 35 DEG C
AIR PRESSURE = 1.0 STD. ATMOSPHERE; RELATIVE HUMIDITY, IN PERCENT, NOTED ABOVE COLUMNS

METHODS (A), (B), (C), (D), AND (E) FOR CALCULATING ATTENUATION ARE EXPLAINED IN ACCOMPANYING TEXT

	10 PCT RH					20 PCT RH					30 PCT RH					40 PCT RH					50 PCT RH				
	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)	(A)	(B)	(C)	(D)	(E)
50	.1	.1	.1	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
63	.1	.1	.1	.1	.1	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2	.0	.0	.0	.0	.2
80	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.2
100	.2	.2	.2	.2	.2	.1	.1	.1	.1	.2	.1	.1	.1	.1	.3	.1	.1	.1	.1	.3	.1	.1	.1	.1	.3
125	.3	.3	.3	.3	.3	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3
140	.4	.4	.4	.4	.4	.3	.3	.3	.3	.4	.3	.3	.3	.3	.4	.3	.3	.3	.3	.4	.3	.3	.3	.3	.4
160	.5	.5	.5	.5	.5	.4	.4	.4	.4	.5	.4	.4	.4	.4	.5	.4	.4	.4	.4	.5	.4	.4	.4	.4	.5
175	.7	.7	.7	.6	.7	.8	.8	.7	.7	.8	.7	.6	.6	.6	.7	.5	.5	.5	.5	.7	.4	.4	.4	.4	.7
200	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8	.8
250	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
315	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
400	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	
500	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	
630	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	
800	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
1000	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	
1250	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	
1600	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	
2000	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	
2500	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	
3150	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	
4000	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	
5000	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
6300	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	
8000	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	
10000	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	

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6. LISTING OF PROGRAM STATEMENTS

The next 12 pages list the statements in FORTRAN IV for the computer program that generated the tables in Section 5. The computation algorithms follow the analytical development in Section 2 for methods (A) to (D). Calculation of attenuation by SAE ARP866A in method (E) essentially uses subroutine ARP866 from Volume II. Numerical integration over the filter passband for methods (B), (C), and (D) uses the standard method in subroutine QSF from the IBM Scientific Subroutine Package. This is the same numerical integration subroutine used in Volume II; it is included here to provide a complete package.

The calculation process follows the format selected for the tables and is accomplished in two steps for each air temperature. In the first step, attenuations by the five methods are calculated for five relative humidities from 10 to 50 percent and for 24 frequency bands. The second step repeats the process for the second set of five relative humidities from 60 to 100 percent. The entire process is then repeated for the next increment in air temperature until the calculations have been completed for all 34 temperatures.

The program is self contained; no input data are required for execution. A number of descriptive comments have been included to facilitate the incorporation of modifications, if desired, and to clarify the various steps in the calculations.

```

1.000 C**** PROGRAM NAME IS TABLES
2.000 C
3.000 C*****
4.000 C
5.000 C     PROGRAM WAS PREPARED BY DYTEC ENGINEERING, INC., OF
6.000 C LONG BEACH, CA; VERSION 2 JUNE 1979.
7.000 C
8.000 C     PURPOSE OF THE PROGRAM IS TO CALCULATE AND LIST TABLES FOR THE
9.000 C ATTENUATION OF SOUND OVER A PROPAGATION DISTANCE OF 300 METERS.
10.000 C
11.000 C     ABSORPTION COEFFICIENTS ARE CALCULATED BY THE METHODS OF
12.000 C AMERICAN NATIONAL STANDARD ANS S1.26-1978 AND BY
13.000 C SAE AEROSPACE RECOMMENDED PRACTICE ARP866A.
14.000 C
15.000 C     ATTENUATION VALUES ARE CALCULATED FOR 34 AIR TEMPERATURES,
16.000 C (2 TO 35 DEG C AT 1 DEG C INTERVALS), 10 RELATIVE HUMIDITIES (10 TO
17.000 C 100 PERCENT AT 10 PERCENTAGE-POINT INTERVALS), AND 24 FREQUENCIES
18.000 C (CORRESPONDING TO THE CENTER FREQUENCIES OF THE 1/3-OCTAVE BANDS
19.000 C BETWEEN 50 AND 10,000 HZ). AIR PRESSURE IS ASSUMED TO BE CONSTANT
20.000 C AT 1.0 STANDARD ATMOSPHERE.
21.000 C
22.000 C     THE PROGRAM IS SELF CONTAINED. NO INPUT DATA ARE REQUIRED.
23.000 C
24.000 C     OUTPUT IS ON DEVICE 6 WITH 58 LINES PER PAGE.
25.000 C
26.000 C     ATTENUATION VALUES ARE LISTED IN DECIBELS OVER A 300-M
27.000 C DISTANCE.
28.000 C
29.000 C*****
30.000 C
31.000 C     DIMENSION FREQ(24),IFREQ(24),S126(10),
32.000 C 1SL1P(10),SL6N(10),SL12N(10),
33.000 C 2SAE866(10),STEP(24),TABLE(58),Y1(31),
34.000 C 3Y2(31),Y3(31),Z1(31),Z2(31),Z3(31)
35.000 C
36.000 C     LOGICAL FRQTI(51)
37.000 C
38.000 C     REAL ISBN,LPSOP0
39.000 C
40.000 C     DATA IFREQ /50,63,80,100,125,160,200,250,315,400,500,630,800,
41.000 C 11000,1250,1600,2000,2500,3150,4000,5000,6300,8000,10000/
42.000 C
43.000 C     DATA FRQTI/' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',
44.000 C 1'O','N','E',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',
45.000 C 2' ','C','E','N','T','E','R',' ',' ',' ',' ',' ',' ',' ',' ',' ',
46.000 C 3'C','Y',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' '/
47.000 C
48.000 C     DATA TABLE /0.00,0.00,0.250,0.315,0.50,0.70,0.6,0.84,0.7,0.93,
49.000 C 10.8,0.975,0.9,0.996,1.0,1.0,1.1,0.97,1.2,0.9,1.3,0.84,1.5,0.75,
50.000 C 21.7,0.67,2.0,0.57,2.3,0.495,2.5,0.45,2.8,0.4,3.0,0.37,3.30,0.33,
51.000 C 33.6,0.3,4.15,0.26,4.45,0.245,4.80,0.23,5.25,0.22,5.7,0.21,
52.000 C 46.05,0.205,6.5,0.2,7.0,0.2,10.0,0.2/

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53.000 C
 54.000 DATA FREQ /50.,63.,80.,100.,125.,160.,200.,250.,315.,400.,500.,
 55.000 1630.,800.,1000.,1250.,1600.,2000.,2500.,3150.,4000.,4500.,
 56.000 25600.,7100.,9000./
 57.000 C
 58.000 DATA STEP/13*8.,10.,12.,14.,16.,18.,20.,22.,24.,26.,28.,30./
 59.000 C
 60.000 C DEFINE AIR PRESSURE, PA, IN STANDARD ATMOSPHERES
 61.000 C
 62.000 PA=1.0
 63.000 C
 64.000 C DEFINE REFERENCE AIR TEMPERATURES
 65.000 C
 66.000 T0=293.15
 67.000 T01=273.16
 68.000 C
 69.000 C DEFINE RF, THE EXACT VALUE OF THE FREQUENCY RATIO FOR
 70.000 C 1/3-OCTAVE BANDS.
 71.000 C
 72.000 RF=10.0**0.1
 73.000 C
 74.000 C
 75.000 C FOR BAND-LEVEL DIFFERENCES OF +1.0 DB/BAND (I.E., A WHITE
 76.000 C NOISE SPECTRUM), THE BAND-LEVEL SLOPE, SLOPE1, IS:
 77.000 C
 78.000 SLOPE1=1.0/(10.0*LOG10(RF))
 79.000 C
 80.000 C AND THE CORRESPONDING SOUND PRESSURE SPECTRAL DENSITY SLOPE,
 81.000 C SL1, IS:
 82.000 C
 83.000 SL1=SLOPE1-1.0
 84.000 C
 85.000 C FOR BAND-LEVEL DIFFERENCES OF -6.0 DB/BAND, THE BAND-LEVEL
 86.000 C SLOPE, SLOPE2, IS:
 87.000 C
 88.000 SLOPE2=-6.0/(10.0*LOG10(RF))
 89.000 C
 90.000 C AND THE CORRESPONDING SOUND PRESSURE SPECTRAL DENSITY
 91.000 C SLOPE, SL2, IS:
 92.000 C
 93.000 SL2=SLOPE2-1.0
 94.000 C
 95.000 C FOR BAND-LEVEL DIFFERENCES OF -12.0 DB/BAND, THE SLOPES ARE:
 96.000 C
 97.000 SLOPE3=-12.0/(10.0*LOG10(RF))
 98.000 SL3=SLOPE3-1.0
 99.000 C
 100.000 C INITIAL VALUES OF AIR TEMPERATURES IN DEG C AND DEG K
 101.000 C
 102.000 TC=1.0
 103.000 TK=274.15
 104.000 C

```

105.000      DO 270 I=1,34
106.000 C
107.000      TC=TC+1.0
108.000      TK=TK+1.0
109.000 C
110.000      WRITE(6,10) TC
111.000 10    FORMAT(8/,T28,'ATTENUATION, IN DB, OVER 300-M PATHLENGTH',
112.000      1' FOR AN AIR TEMPERATURE OF ',I2,' DEG C')
113.000      WRITE(6,20)
114.000 20    FORMAT(T23,'AIR PRESSURE = 1.0 STD. ATMOSPHERE; RELATIVE',
115.000      1' HUMIDITY, IN PERCENT, NOTED ABOVE COLUMNS')
116.000      WRITE(6,30)
117.000 30    FORMAT(/,T17,'METHODS (A), (B), (C), (D), AND (E) FOR',
118.000      1' CALCULATING ATTENUATION ARE EXPLAINED IN'
119.000      2' ACCOMPANYING TEXT')
120.000      WRITE(6,40)
121.000 40    FORMAT(/,T17,'10 PCT RH',16X,'20 PCT RH',16X,'30 PCT RH',
122.000      116X,'40 PCT RH',16X,'50 PCT RH')
123.000      WRITE(6,50)
124.000 50    FORMAT(T8,5' (A) (B) (C) (D) (E)')
125.000 C
126.000      DO 140 J=1,24
127.000 C
128.000 C      INITIAL VALUE OF RELATIVE HUMIDITY, IN PERCENT
129.000 C
130.000      HR=0.0
131.000 C
132.000      DO 120 K=1,5
133.000 C
134.000      HR=HR+10.0
135.000 C
136.000 C      CALCULATE THE EXACT BAND CENTER FREQUENCIES FROM THE
137.000 C      INTERNATIONAL STANDARD BAND NUMBERS,ISBN.
138.000 C
139.000      ISBN=J+16
140.000      FC=10.0**(ISBN/10.0)
141.000 C
142.000 C      THE EXACT LOWER, FL, AND UPPER, FU, BANDEGE FREQUENCIES FOR
143.000 C      THE FILTER BAND ARE:
144.000 C
145.000      FL=FC/SQRT(RF)
146.000      FU=FC*SQRT(RF)
147.000 C
148.000 C      THE WIDTH OF THE EQUALLY SPACED FREQUENCY INTERVALS, DELF,
149.000 C      OVER THE PASSBAND OF THE FILTER IS:
150.000 C
151.000      DELF=(FU-FL)/STEP(J)
152.000 C
153.000 C      THE VALUE OF THE FREQUENCY AT ONE STEP BELOW THE LOWER
154.000 C      BANDEGE FREQUENCY IS:
155.000 C
156.000      F=FL-DELF
157.000 C

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158.000 C      THE TOTAL NUMBER OF FREQUENCY STEPS IN THE NUMERICAL
159.000 C      INTEGRATION OVER THE PASSBAND OF THE IDEAL FILTER IS:
160.000 C
161.000      NN=1+STEP(J)
162.000 C
163.000 C      CALCULATE THE DENOMINATOR TERMS USED IN THE INTEGRATION
164.000 C      METHOD TO DETERMINE THE BAND ATTENUATION OVER EACH OF THE
165.000 C      THREE SPECTRAL SLOPES.
166.000 C
167.000 C
168.000 C      THE DENOMINATOR TERM FOR THE +1.0 DB/BAND SLOPE IS:
169.000 C
170.000      DEN1=FC*(1.0/(SL1+1.0))*((RF**((SL1+1.0)/2.0))-
171.000 1      (RF**(-(SL1+1.0)/2.0)))
172.000 C
173.000 C      THE DENOMINATOR TERM FOR THE -6.0 DB/BAND SLOPE IS:
174.000 C
175.000      DEN2=FC*(1.0/(SL2+1.0))*((RF**((SL2+1.0)/2.0))-
176.000 1      (RF**(-(SL2+1.0)/2.0)))
177.000 C
178.000 C      THE DENOMINATOR TERM FOR THE -12.0 DB/BAND SLOPE IS:
179.000 C
180.000      DEN3=FC*(1.0/(SL3+1.0))*((RF**((SL3+1.0)/2.0))-
181.000 1      (RF**(-(SL3+1.0)/2.0)))
182.000 C
183.000 C      (A) CALCULATE ABSORPTION COEFFICIENTS BY S1.26-1978
184.000 C
185.000      LPSOP0=10.79586*(1.-(T01/TK)) - 5.02808*LOG10(TK/T01)
186.000 1      +1.50474E-4*(1.-10.**((-8.29692*((TK/T01)-1.)))
187.000 2      +0.42873E-3*(10.**((4.76955*(1.-(T01/TK)))-1.))
188.000 3      -2.2195983
189.000      PSOP0=10.**LPSOP0
190.000      H=HR*PSOP0/PA
191.000      FRO2=PA*(24.+4.41E04*H*((0.05+H)/(0.391+H)))
192.000      FRN2=(PA/SQRT(TK/T0))*((9.+
193.000 1      350.*H*EXP(-6.142*((TK/T0)**(-1./3.))-1.)))
194.000      ALPHA=(FC**2.)*(((1.84E-11)*(1./PA)*SQRT(TK/T0))
195.000 1      +((TK/T0)**(-5./2.))*((1.278E-2*
196.000 2      (EXP(-2239.1/TK))/(FRO2+((FC**2.)/FRO2)))
197.000 3      +(0.1068*(EXP(-3352./TK))/(FRN2+((FC**2.)/FRN2)))))
198.000 C
199.000 C      THE ABSORPTION COEFFICIENT, AFC IN DB/M, AT THE EXACT BAND
200.000 C      CENTER FREQUENCY BY S1.26-1978 IS:
201.000 C
202.000      AFC=8.686*ALPHA
203.000 C
204.000 C      THE ATTENUATION OVER A 300-M DISTANCE IS:
205.000 C
206.000      S126(K)=AFC*300.0
207.000 C
208.000 C      (B), (C), AND (D) CALCULATE BAND ATTENUATION FACTORS BY
209.000 C      THE INTEGRATION METHOD FOR THE THREE SPECTRAL SLOPES.
210.000 C

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211.000      DO 60 JJ=1,NN
212.000 C
213.000 C      DETERMINE THE FREQUENCIES, F, AT EACH STEP OVER THE
214.000 C      FREQUENCY RANGE OF THE FILTER PASSBAND.
215.000 C
216.000      F=F+DELF
217.000 C
218.000 C      THE VALUES OF THE NORMALIZED SOUND PRESSURE SPECTRAL
219.000 C      DENSITIES AT FREQUENCY F FOR THE THREE SPECTRAL SLOPES ARE:
220.000 C
221.000      X1=(F/FC)**(SL1)
222.000      X2=(F/FC)**(SL2)
223.000      X3=(F/FC)**(SL3)
224.000 C
225.000 C      DETERMINE THE ABSORPTION COEFFICIENT, ABCO IN DB/M, AT
226.000 C      FREQUENCY F FOR AIR TEMPERATURE TK, RELATIVE HUMIDITY,
227.000 C      HR, AND AIR PRESSURE OF 1.0 STD. ATM.
228.000 C
229.000      ABCO=8.686*(F**2.)*(((1.84E-11)*(1./PA)*SQRT(TK/T0))
230.000      1      +((TK/T0)**(-5./2.))*((1.278E-2*
231.000      2      (EXP(-2239.1/TK))/(FRO2+((F**2.)/FRO2)))
232.000      3      +(0.1068*(EXP(-3352./TK))/(FRN2+((F**2.)/FRN2))))))
233.000 C
234.000 C      THE ABSORPTION-LOSS FACTOR, ALF, OVER THE 300-M DISTANCE,
235.000 C      IN THE DIRECTION OF PROPAGATION, IS:
236.000 C
237.000      ALF=10.0**(-(ABCO*300.0)/10.0)
238.000 C
239.000 C      THE ARGUMENTS FOR THE NUMERATOR INTEGRAL OF THE
240.000 C      BAND ATTENUATION FACTOR FOR THE THREE SPECTRAL SLOPES ARE:
241.000 C
242.000      Y1(JJ)=X1*ALF
243.000      Y2(JJ)=X2*ALF
244.000 60    Y3(JJ)=X3*ALF
245.000 C
246.000 C      CALL THE NUMERICAL INTEGRATION SUBROUTINE, QSF, TO INTEGRATE
247.000 C      THE ARRAYS OF INTEGRAND VALUES OVER THE FREQUENCY RANGE OF THE
248.000 C      IDEAL-FILTER PASSBANDS.
249.000 C
250.000      CALL QSF(DELF,Y1,Z1,NN)
251.000      CALL QSF(DELF,Y2,Z2,NN)
252.000      CALL QSF(DELF,Y3,Z3,NN)
253.000 C
254.000 C      FIND BAND ATTENUATION FACTORS FOR THE THREE SLOPES.
255.000 C
256.000      SL1P(K)=-10.0*LOG10((Z1(NN))/DEN1)
257.000      SL6N(K)=-10.0*LOG10((Z2(NN))/DEN2)
258.000      SL12N(K)=-10.0*LOG10((Z3(NN))/DEN3)
259.000 C

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260.000 C      (E) CALCULATE ABSORPTION COEFFICIENTS BY SAE ARP866A
261.000 C
262.000      B=1.328924-3.179768E-02*TC+2.173716E-04*TC**2.
263.000      1-1.7496E-06*TC**3.
264.000      ABSHUM=10.0**((LOG10(HR)-B)
265.000      AMOLMX=10.0**((LOG10(FREQ(J))+8.42994E-03*TC-2.755624)
266.000      HMOLMX=SQRT(FREQ(J)/1010.)
267.000      HUMRAT=ABSHUM/HMOLMX
268.000      L=2
269.000      IF(HUMRAT.LE.TABLE(1))GOTO 100
270.000      DO 70 M=3,57,2
271.000      L=M+1
272.000      IF(TABLE(M)-HUMRAT)70,100,80
273.000 70     CONTINUE
274.000      GOTO 100
275.000 80     M=M-2
276.000      IF(M.GE.3)GOTO 90
277.000      M=M+2
278.000 90     XA1=HUMRAT-TABLE(M)
279.000      XA0=HUMRAT-TABLE(M-2)
280.000      XA2=HUMRAT-TABLE(M+2)
281.000      X01=TABLE(M-2)-TABLE(M)
282.000      X02=TABLE(M-2)-TABLE(M+2)
283.000      X12=TABLE(M)-TABLE(M+2)
284.000      ALPRAT=TABLE(M-1)*(XA1/X01)*(XA2/X02)
285.000 1      -TABLE(M+1)*(XA0/X01)*(XA2/X12)
286.000 2      +TABLE(M+3)*(XA0/X02)*(XA1/X12)
287.000      GOTO 110
288.000 100    ALPRAT=TABLE(L)
289.000 110    ALPMOL=ALPRAT*AMOLMX
290.000      ALPCLA=10.0**((2.05*LOG10(FREQ(J)/1000.) + 1.1394E-03*TC
291.000 1      - 1.916984)
292.000      ABSORB=0.01*(ALPCLA + ALPMOL)
293.000 C
294.000 C      THE ATTENUATION OVER A 300-M DISTANCE IS:
295.000 C
296.000      SAE866(K)=ABSORB*300.0
297.000 C
298.000 120    CONTINUE
299.000 C
300.000      WRITE(6,130) FRQTI(J),IFREQ(J),(S126(K),SL1P(K),
301.000 1SL6N(K),SL12N(K),SAE866(K),K=1,5)
302.000 130    FORMAT(T1,A1,I6,5(5F5.1))
303.000 C
304.000 140    CONTINUE
305.000 C
306.000      WRITE(6,150)FRQTI(25)
307.000 150    FORMAT(T1,A1)
308.000      WRITE(6,160) FRQTI(26)
309.000 160    FORMAT(T1,A1,T17,'60 PCT RH',16X,'70 PCT RH',16X,
310.000 1'80 PCT RH',16X,'90 PCT RH',15X,'100 PCT RH')
311.000      WRITE(6,170) FRQTI(27)
312.000 170    FORMAT(T1,A1,T8,5' (A) (B) (C) (D) (E)')
313.000 C

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314.000      DO 260 J=1,24
315.000 C
316.000      HR=50.0
317.000 C
318.000      DO 240 K=6,10
319.000 C
320.000      HR=HR+10.0
321.000 C
322.000 C      CALCULATE THE EXACT BAND CENTER FREQUENCIES FROM THE
323.000 C      INTERNATIONAL STANDARD BAND NUMBERS, ISBN.
324.000 C
325.000      ISBN=J+16
326.000      FC=10.0**((ISBN/10.0))
327.000 C
328.000 C      THE EXACT LOWER, FL, AND UPPER, FU, BANDEDGE FREQUENCIES FOR
329.000 C      THE FILTER BAND ARE:
330.000 C
331.000      FL=FC/SQRT(RF)
332.000      FU=FC*SQRT(RF)
333.000 C
334.000 C      THE WIDTH OF THE EQUALLY SPACED FREQUENCY INTERVALS, DELF,
335.000 C      OVER THE PASSBAND OF THE FILTER IS:
336.000 C
337.000      DELF=(FU-FL)/STEP(J)
338.000 C
339.000 C      THE VALUE OF THE FREQUENCY AT ONE STEP BELOW THE LOWER
340.000 C      BANDEDGE FREQUENCY IS:
341.000 C
342.000      F=FL-DELF
343.000 C
344.000 C      THE TOTAL NUMBER OF FREQUENCY STEPS IN THE NUMERICAL
345.000 C      INTEGRATION OVER THE PASSBAND OF THE IDEAL FILTER IS:
346.000 C
347.000      NN=1+STEP(J)
348.000 C
349.000 C      CALCULATE THE DENOMINATOR TERMS USED IN THE INTEGRATION
350.000 C      METHOD TO DETERMINE THE BAND ATTENUATION OVER EACH OF THE
351.000 C      THREE SPECTRAL SLOPES.
352.000 C
353.000 C
354.000 C      THE DENOMINATOR TERM FOR THE +1.0 DB/BAND SLOPE IS:
355.000 C
356.000      DEN1=FC*(1.0/(SL1+1.0))*((RF**((SL1+1.0)/2.0))-
357.000 1      (RF**(-(SL1+1.0)/2.0)))
358.000 C
359.000 C      THE DENOMINATOR TERM FOR THE -6.0 DB/BAND SLOPE IS:
360.000 C
361.000      DEN2=FC*(1.0/(SL2+1.0))*((RF**((SL2+1.0)/2.0))-
362.000 1      (RF**(-(SL2+1.0)/2.0)))
363.000 C
364.000 C      THE DENOMINATOR TERM FOR THE -12.0 DB/BAND SLOPE IS:
365.000 C
366.000      DEN3=FC*(1.0/(SL3+1.0))*((RF**((SL3+1.0)/2.0))-
367.000 1      (RF**(-(SL3+1.0)/2.0)))

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368.000 C
369.000 C      (A) CALCULATE ABSORPTION COEFFICIENTS BY S1.26-1978
370.000 C
371.000      LPSOP0=10.79586*(1.-(T01/TK)) - 5.02808*LOG10(TK/T01)
372.000      1      +1.50474E-4*(1.-10.**(-8.29692*((TK/T01)-1.)))
373.000      2      +0.42873E-3*(10.**((4.76955*(1.-(T01/TK)))-1.)
374.000      3      -2.2195983
375.000      PSOP0=10.**LPSOP0
376.000      H=HR*PSOP0/PA
377.000      FRO2=PA*(24.+4.41E04*H*((0.05+H)/(0.391+H)))
378.000      FRN2=(PA/SQRT(TK/T0))*(9.+
379.000      1      350.*H*EXP(-6.142*((TK/T0)**(-1./3.))-1.)))
380.000      ALPHA=(FC**2.)*(((1.84E-11)*(1./PA)*SQRT(TK/T0))
381.000      1      +((TK/T0)**(-5./2.))*((1.278E-2*
382.000      2      (EXP(-2239.1/TK))/(FRO2+((FC**2.)/FRO2)))
383.000      3      +(0.1068*(EXP(-3352./TK))/(FRN2+((FC**2.)/FRN2))))))
384.000 C
385.000 C      THE ABSORPTION COEFFICIENT, AFC IN DB/M, AT THE EXACT BAND
386.000 C      CENTER FREQUENCY BY S1.26-1978 IS:
387.000 C
388.000      AFC=8.686*ALPHA
389.000 C
390.000 C      THE ATTENUATION OVER A 300-M DISTANCE IS:
391.000 C
392.000      S126(K)=AFC*300.0
393.000 C
394.000 C      (B), (C), AND (D) CALCULATE BAND ATTENUATION FACTORS BY
395.000 C      THE INTEGRATION METHOD FOR THE THREE SPECTRAL SLOPES.
396.000 C
397.000      DO 180 JJ=1,NN
398.000 C
399.000 C      DETERMINE THE FREQUENCIES, F, AT EACH STEP OVER THE
400.000 C      FREQUENCY RANGE OF THE FILTER PASSBAND.
401.000 C
402.000      F=F+DELF
403.000 C
404.000 C      THE VALUES OF THE NORMALIZED SOUND PRESSURE SPECTRAL
405.000 C      DENSITIES AT FREQUENCY F FOR THE THREE SPECTRAL SLOPES ARE:
406.000 C
407.000      X1=(F/FC)**(SL1)
408.000      X2=(F/FC)**(SL2)
409.000      X3=(F/FC)**(SL3)
410.000 C
411.000 C      DETERMINE THE ABSORPTION COEFFICIENT, ABCO IN DB/M, AT
412.000 C      FREQUENCY F FOR AIR TEMPERATURE TK, RELATIVE HUMIDITY,
413.000 C      HR, AND AIR PRESSURE OF 1.0 STD. ATM.
414.000 C
415.000      ABCO=8.686*(F**2.)*(((1.84E-11)*(1./PA)*SQRT(TK/T0))
416.000      1      +((TK/T0)**(-5./2.))*((1.278E-2*
417.000      2      (EXP(-2239.1/TK))/(FRO2+((F**2.)/FRO2)))
418.000      3      +(0.1068*(EXP(-3352./TK))/(FRN2+((F**2.)/FRN2))))))
419.000 C

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420.000 C      THE ABSORPTION-LOSS FACTOR, ALF, OVER THE 300-M DISTANCE,
421.000 C      IN THE DIRECTION OF PROPAGATION, IS:
422.000 C
423.000      ALF=10.0**(-(ABCO*300.0)/10.0)
424.000 C
425.000 C      THE ARGUMENTS FOR THE NUMERATOR INTEGRAL OF THE
426.000 C      BAND ATTENUATION FACTOR FOR THE THREE SPECTRAL SLOPES ARE:
427.000 C
428.000      Y1(JJ)=X1*ALF
429.000      Y2(JJ)=X2*ALF
430.000 180 Y3(JJ)=X3*ALF
431.000 C
432.000 C      CALL THE NUMERICAL INTEGRATION SUBROUTINE, QSF, TO INTEGRATE
433.000 C      THE ARRAYS OF INTEGRAND VALUES OVER THE FREQUENCY RANGE OF THE
434.000 C      IDEAL-FILTER PASSBANDS.
435.000 C
436.000      CALL QSF(DELF,Y1,Z1,NN)
437.000      CALL QSF(DELF,Y2,Z2,NN)
438.000      CALL QSF(DELF,Y3,Z3,NN)
439.000 C
440.000 C      FIND BAND ATTENUATION FACTORS FOR THE THREE SLOPES.
441.000 C
442.000      SL1P(K)=-10.0*LOG10((Z1(NN))/DEN1)
443.000      SL6N(K)=-10.0*LOG10((Z2(NN))/DEN2)
444.000      SL12N(K)=-10.0*LOG10((Z3(NN))/DEN3)
445.000 C
446.000 C      (E) CALCULATE ABSORPTION COEFFICIENTS BY SAE ARP866A
447.000 C
448.000      B=1.328924-3.179768E-02*TC+2.173716E-04*TC**2.
449.000      1-1.7496E-06*TC**3.
450.000      ABSHUM=10.0**(LOG10(HR)-B)
451.000      AMOLMX=10.0**(LOG10(FREQ(J))+8.42994E-03*TC-2.755624)
452.000      HMOLMX=SQRT(FREQ(J)/1010.)
453.000      HUMRAT=ABSHUM/HMOLMX
454.000      L=2
455.000      IF(HUMRAT.LE.TABLE(1))GOTO 220
456.000      DO 190 M=3,57,2
457.000      L=M+1
458.000      IF(TABLE(M)-HUMRAT)190,220,200
459.000 190 CONTINUE
460.000      GOTO 220
461.000 200 M=M-2
462.000      IF(M.GE.3)GOTO 210
463.000      M=M+2
464.000 210 XA1=HUMRAT-TABLE(M)
465.000      XA0=HUMRAT-TABLE(M-2)
466.000      XA2=HUMRAT-TABLE(M+2)
467.000      X01=TABLE(M-2)-TABLE(M)
468.000      X02=TABLE(M-2)-TABLE(M+2)
469.000      X12=TABLE(M)-TABLE(M+2)
470.000      ALPRAT=TABLE(M-1)**(XA1/X01)**(XA2/X02)
471.000      1 -TABLE(M+1)**(XA0/X01)**(XA2/X12)
472.000      2 +TABLE(M+3)**(XA0/X02)**(XA1/X12)
473.000      GOTO 230

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474.000 220 ALPRAT=TABLE(L)
475.000 230 ALPMOL=ALPRAT*AMOLMX
476.000 ALPCLA=10.0**((2.05*LOG10(FREQ(J)/1000.) + 1.1394E-03*TC
477.000 1 - 1.916984)
478.000 ABSORB=0.01*(ALPCLA + ALPMOL)
479.000 C
480.000 C THE ATTENUATION OVER A 300-M DISTANCE IS:
481.000 C
482.000 SAE866(K)=ABSORB*300.0
483.000 C
484.000 240 CONTINUE
485.000 C
486.000 JJ=J+27
487.000 WRITE(6,250) FRQTI(JJ),IFREQ(J),(S126(K),SL1P(K),
488.000 1SL6N(K),SL12N(K),SAE866(K),K=6,10)
489.000 250 FORMAT(T1,A1,I6,5(5F5.1))
490.000 C
491.000 260 CONTINUE
492.000 C
493.000 270 CONTINUE
494.000 C
495.000 END
496.000 C
497.000 SUBROUTINE QSF(H,Y,Z,NDIM)
498.000 C
499.000 C*****C
500.000 C
501.000 C SUBROUTINE QSF FROM IBM SCIENTIFIC SUBROUTINE PACKAGE (SSP),
502.000 C FIFTH EDITION,AUGUST 1970.
503.000 C
504.000 C PURPOSE
505.000 C TO COMPUTE THE ARRAY OF INTEGRAL VALUES FOR A GIVEN
506.000 C EQUIDISTANT TABLE OF FUNCTION VALUES.
507.000 C
508.000 C USAGE
509.000 C CALL QSF (H,Y,Z,NDIM)
510.000 C
511.000 C DESCRIPTION OF PARAMETERS
512.000 C H -THE INCREMENT OF ARGUMENT VALUES.
513.000 C Y -THE INPUT ARRAY OF FUNCTION VALUES.
514.000 C Z -THE RESULTING ARRAY OF INTEGRAL VALUES. Z MAY BE
515.000 C IDENTICAL WITH Y.
516.000 C NDIM -THE DIMENSION OF ARRAYS Y AND Z.
517.000 C
518.000 C REMARKS
519.000 C NO ACTION IN CASE NDIM LESS THAN 3.
520.000 C NO SUBROUTINES OR FUNCTION SUBPROGRAMS ARE REQUIRED.
521.000 C
522.000 C METHOD
523.000 C BEGINNING WITH Z(1)=0, EVALUATION OF ARRAY Z IS DONE BY
524.000 C MEANS OF SIMPSON'S RULE TOGETHER WITH NEWTON'S 3/8 RULE OR
525.000 C A COMBINATION OF THESE TWO RULES. TRUNCATION ERROR IS OF
526.000 C ORDER H**5 (I.E.,FOURTH ORDER METHOD). ONLY IN CASE NDIM=3
527.000 C IS THE TRUNCATION ERROR OF Z(2) OF ORDER H**4.
528.000 C
529.000 C*****C

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530.000 C
531.000 DIMENSION Y(1),Z(1)
532.000 C
533.000 HT=0.3333333*H
534.000 IF(NDIM-5)7,8,1
535.000 C
536.000 C NDIM IS GREATER THAN 5. PREPARATION OF INTEGRATION LOOP.
537.000 C
538.000 1 SUM1=Y(2)+Y(2)
539.000 SUM1=SUM1+SUM1
540.000 SUM1=HT*(Y(1)+SUM1+Y(3))
541.000 AUX1=Y(4)+Y(4)
542.000 AUX1=AUX1+AUX1
543.000 AUX1=SUM1+HT*(Y(3)+AUX1+Y(5))
544.000 AUX2=HT*(Y(1)+3.875*(Y(2)+Y(5))+2.625*(Y(3)+Y(4))+Y(6))
545.000 SUM2=Y(5)+Y(5)
546.000 SUM2=SUM2+SUM2
547.000 SUM2=AUX2-HT*(Y(4)+SUM2+Y(6))
548.000 Z(1)=0.0
549.000 AUX=Y(3)+Y(3)
550.000 AUX=AUX+AUX
551.000 Z(2)=SUM2-HT*(Y(2)+AUX+Y(4))
552.000 Z(3)=SUM1
553.000 Z(4)=SUM2
554.000 IF(NDIM-6)5,5,2
555.000 C
556.000 C INTEGRATION LOOP.
557.000 C
558.000 2 DO 4 I=7,NDIM,2
559.000 SUM1=AUX1
560.000 SUM2=AUX2
561.000 AUX1=Y(I-1)+Y(I-1)
562.000 AUX1=AUX1+AUX1
563.000 AUX1=SUM1+HT*(Y(I-2)+AUX1+Y(I))
564.000 Z(I-2)=SUM1
565.000 IF(I-NDIM)3,6,6
566.000 3 AUX2=Y(I)+Y(I)
567.000 AUX2=AUX2+AUX2
568.000 AUX2=SUM2+HT*(Y(I-1)+AUX2+Y(I+1))
569.000 4 Z(I-1)=SUM2
570.000 5 Z(NDIM-1)=AUX1
571.000 Z(NDIM)=AUX2
572.000 RETURN
573.000 6 Z(NDIM-1)=SUM2
574.000 Z(NDIM)=AUX1
575.000 RETURN
576.000 C
577.000 C END OF INTEGRATION LOOP FOR NDIM GREATER THAN 5.
578.000 C
579.000 7 IF (NDIM-3)12,11,8
580.000 C
581.000 C NDIM IS EQUAL TO 4 OR 5.
582.000 C

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583.000 8 SUM2=1.125*HT*(Y(1)+Y(2)+Y(2)+Y(2)+Y(3)+Y(3)+Y(3)+Y(4))
584.000 SUM1=Y(2)+Y(2)
585.000 SUM1=SUM1+SUM1
586.000 SUM1=HT*(Y(1)+SUM1+Y(3))
587.000 Z(1)=0.0
588.000 AUX1=Y(3)+Y(3)
589.000 AUX1=AUX1+AUX1
590.000 Z(2)=SUM2-HT*(Y(2)+AUX1+Y(4))
591.000 IF(NDIM-5)10,9,9
592.000 C
593.000 C HERE NDIM IS EQUAL TO 5.
594.000 C
595.000 9 AUX1=Y(4)+Y(4)
596.000 AUX1=AUX1+AUX1
597.000 Z(5)=SUM1+HT*(Y(3)+AUX1+Y(5))
598.000 C
599.000 C HERE NDIM IS EQUAL TO 4.
600.000 C
601.000 10 Z(3)=SUM1
602.000 Z(4)=SUM2
603.000 RETURN
604.000 C
605.000 C HERE NDIM IS EQUAL TO 3.
606.000 C
607.000 11 SUM1=HT*(1.25*Y(1)+Y(2)+Y(2)-0.25*Y(3))
608.000 SUM2=Y(2)+Y(2)
609.000 SUM2=SUM2+SUM2
610.000 Z(3)=HT*(Y(1)+SUM2+Y(3))
611.000 Z(1)=0.0
612.000 Z(2)=SUM1
613.000 12 RETURN
614.000 END

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